

The Candy Manufacturer

A Technical and Commercial Magazine for Manufacturing Confectioners Exclusively
Published by THE CANDY MANUFACTURER PUBLISHING CO., Stock Exchange Bldg., Chicago

Vol. II

DECEMBER, 1922

No. 11



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V. L. PRICE

Pass The Candy Manufacturer around

After reading forward to:

Superintendent	Chairman
Purchasing Dept.	
Sales Manager	Return to

Read wherever good candy is MADE



DELFT

The World's Best Food Gelatine

HAROLD A. SINCLAIR, 160 Broadway, NEW YORK

"Price is a relative term—Quality always a concrete fact"

DISTRIBUTORS:

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LEE-GREEFKENS CO.
570 Folsom St., San Francisco, Cal.

CALIFORNIA FOOD PRODUCTS
COMPANY
949 E. Second St., Los Angeles, Cal.

W. P. DOWNEY
88 Grey Nun St., Montreal, Can.

STOCKS
EVERYWHERE

Delft Gelatine at Old Prices Under New Tariff

In our recent advertising we said: "No tariff changes will curtail supplies, nor affect present reasonable prices."

We succeeded in convincing the tariff makers that it would have worked an injury to the gelatine consumers had the proposed radical increase on edible gelatine been adopted.

The tariff has been raised somewhat, but we have decided to absorb the difference. You can continue to buy Delft Gelatine at the prices that prevailed before the new tariff went into effect.

And Delft high standards will be maintained exactly as before.

Cordially yours, with a Christmas handshake and best wishes for a Happy and Prosperous New Year,

Harold A. Sinclair

Members: National Confectioners' Association, Midland Club, Chicago Association of Commerce.

The Candy Manufacturer

Registered, U. S. Patent Office

"READ WHEREVER GOOD CANDY IS MADE"

A Specialized Technical and Commercial Magazine for Confectionery Superintendents, Purchasing Agents and Executives

Contents Copyrighted 1922, Earl R. Allured

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Vol. II

DECEMBER, 1922

No. 11

PURPOSE

The purpose of THE CANDY MANUFACTURER is to provide a medium of constructive service and communication between manufacturing confectioners exclusively, a high-class specialized business magazine devoted to the problems and interests incident to the manufacture of confections and the management of a candy factory.

POLICY

THE CANDY MANUFACTURER, being a highly specialized publication, is edited in the interest of the executive, the purchasing agent, the chemist and the superintendent exclusively, and provides a medium for the free and frank discussion of manufacturing policies and problems, methods and materials.

The same corresponding policy applies to the advertising pages which are available only for a message directed to manufacturing confectioners and relative to a reputable product or service applicable to a candy factory.

The Candy Manufacturer believes in

A Technical Candy School with resident and extension courses for factory superintendents and journeymen candy makers.

Pure Food Legislation which enforces a quality standard for confectionery.

Rigid Inspection of candy factories to enforce sanitation and working conditions necessary for the production of a pure food product.

Maximum Production from each production unit of a candy factory and a clearing house of production records.

Uniform Method of cost finding and accounting.

An Annual Exposition of Confectioners' Supplies and equipment under direction of (not merely endorsed by) The National Confectioners' Association.

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The Candy Manufacturer's Approved Advertising of Confectioners' Machinery and Supplies and Miscellaneous Advertising Directed to Manufacturing Confectioners'

POLICY: THE CANDY MANUFACTURER is essentially a manufacturers' publication and therefore is a logical advertising medium only for confectioners' supplies and equipment. The advertising pages of THE CANDY MANUFACTURER are open only for messages regarding reputable products or propositions of which the manufacturers of confectionery and chocolate are logical buyers.

This policy **EXCLUDES** advertising directed to the distributors of confectionery, the soda fountain and ice cream trade. The advertisements in THE CANDY MANUFACTURER are presented herewith with our recommendation. The machinery equipment and supplies advertised in this magazine, to the best of our knowledge, possess merit worthy of your careful consideration.

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Sterling Brands ^{are} of Known Value



Senneff's Big Three Candy Maker's Specialties are the foundation of the success of many well-known candy lines which are popular repeaters with jobbing and retail trade.

Senneff-Herr Products have given some of the foremost wholesale manufacturing confectioners a new conception of how to improve the eating and keeping qualities of their candies. At least be open to conviction and give *Senneff's Big Three* a fair trial—

Quality
Products for
Quality
Confectioners

Senneff-Herr's Big Three

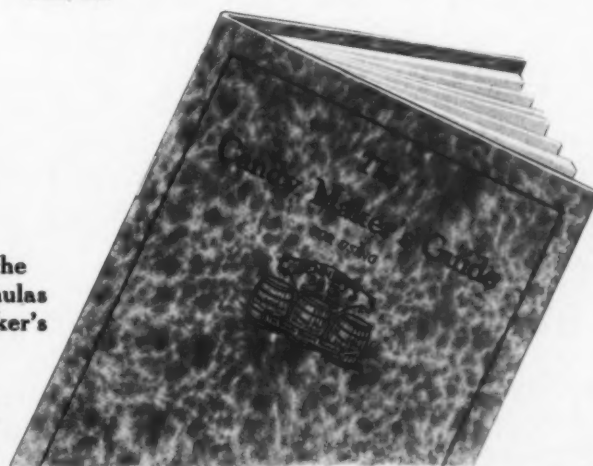
Egg O Creme: A soft, snowy white, velvety, starch cast center cream, that ripens readily and holds moisture indefinitely.

X-L Cream Caramel Paste: Contains a large percentage of real, pure, sweet, rich cream, giving it a wonderful creamy flavor.

Nougat Whip: The product that is unequaled in making light, fluffy, Hand Roll Centers, Nougat Bars, etc.

Try out a few of the tested proven formulas in *The Candy Maker's Guide*—

Your copy will be mailed gratis, on request



SENNEFF-HERR COMPANY, Sterling, Ill.

You may send a copy of your *Candy Maker's Guide*—without obligation.

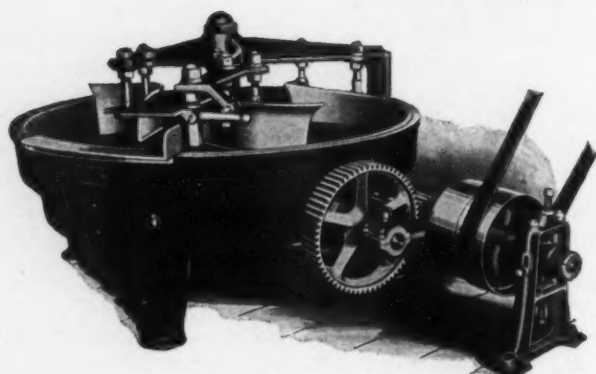
Name.....

Per.....

Address.....

"You can't beat 'em"

The Ball and Dayton Cream Beaters and Coolers



The Dayton Beater and Cooler

References, detailed description and prices
on request.

Fully protected by patents.

Beware of imitators and infringements.

President Harris says: *"We cannot avoid competition, as it is inevitable at all times, but we can prepare ourselves to meet it, and the equipment for such preparation will not be the apparently easier method of cutting prices, but by attaining more efficiency in each department."*

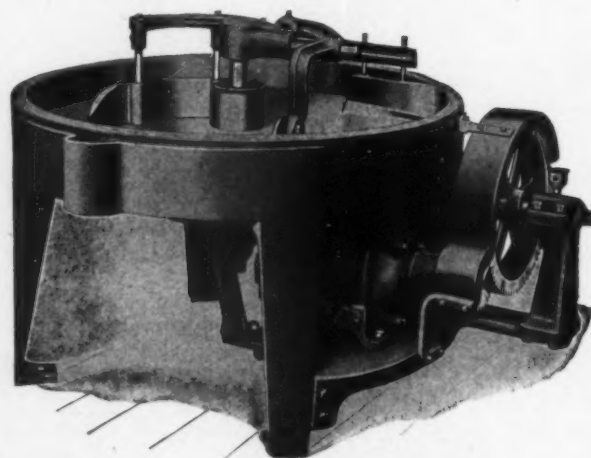
The Ball and Dayton Beaters are proven time-and-money-savers while producing just the kind of work which the finest quality goods demand.

The Answer: Lower costs and more profits.

The Ball Beater and Cooler

The above illustration shows motor attached to machine with gear drive. This can be applied to either our 3, 4 or 5 foot Ball machines, also our 5 foot Dayton machines. Price upon application.

Notice the rigid and substantial construction of the motor attachment.



Send for descriptive literature on entire line giving sizes, capacities, horse-power required, speed, weights, details of construction and net prices.

THE BALL CREAM BEATER CO.
DAYTON, OHIO

THOS. MILLS & BRO., Inc.

Established 1864

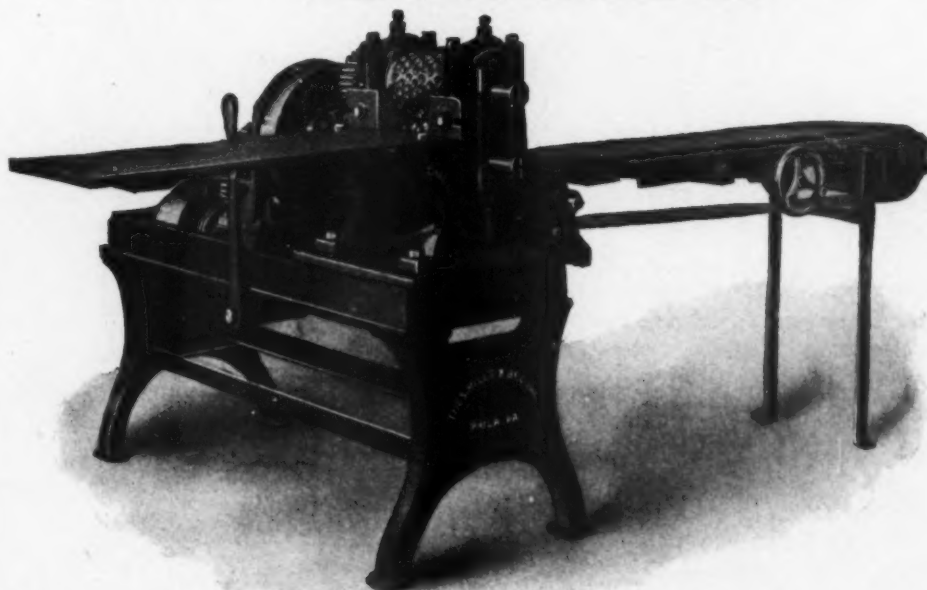
CONFECTIONERS' TOOLS AND MACHINERY

1301 to 1315 North Eighth St.

PHILADELPHIA, PA.
STATION O



Automatic Caramel Cutting Machine—Cuts Both Ways in One Travel of the Bed, Used in Leading Factories for Caramels, Coconut Blocks, Etc., Send for Circular.



Large Power Drop Frame with Stand and Endless Belt Conveyor; Our Latest Type for Large Output and Heavy Duty.

Our Catalog "O" Should Be in the Hands of Every Factory Superintendent; Sent on Application. Please Mention "The Candy Manufacturer" It Helps.

The Devine Superior Continuous Steam Vacuum Cooker De

For Dryer, Whiter, Clearer and Highest Satin Finish
Hard Candies

*Will Cook to Perfection Straight Sugar or Any Mixture
of Ingredients*



Rear View of a Complete Unit. Simple to Operate.
Capacity 200 lbs. per charge.

Constructed to give results in quality, quantity and economy in fuel and
upkeep.

Eliminates pumping, transferring and graining—*No Cloudy Batches.*

A Machine for Saving Money and Time.

Detailed Information Upon Request.

J. P. DEVINE COMPANY

BUFFALO, N. Y.

Selling Agents: Special Machine Company, 39 Courtlandt Street, New York City

Devine Continuous Vacuum Cookers

GAS HEATED



Cooker furnished complete with two Portable Kettles, Swinging Vacuum Dome, Condenser and Motor-driven Vacuum Pump, two Gas Furnaces with Motor-operated Air Blower and Permanent Pipe Connection, all mounted on Continuous Cast Iron Base Plate, ready for gas, water and wiring connections.

Each Kettle alternately used as Melter and Vacuum Cooker, without transferring syrup, preventing grained and cloudy batches.

Capacity, 100 lbs. per charge.

SPECIAL MACHINE COMPANY

39 Cortlandt Street

NEW YORK CITY

Selling Agents for J. P. DEVINE CO.

Chocolates are only as good as their Coatings

It's the **coating** that counts in candy-making.

The **coating** is the first thing the candy lover sees and tastes of your chocolates.

The **COATING** makes or breaks you with your public.

Runkels are making the coatings for leading quality brands. Runkels are ready to submit samples and prices without obligating you to buy.

Write

Runkel Brothers, Inc.

Manufacturers of

"The Cocoa with that Chocolatey Taste"

451 West 30th Street

NEW YORK

CHICAGO

PHILADELPHIA

*More money is going to
be made for the candy
trade of America—this
coming year—if the
idea which follows is
used as the basis of
sales-plans for 1923:*



hes



To My Mother

If I could write what I thought
Or say what I ought,
I'd write a word all pure gold
That never on the lips is cold.

There's not a word
no, not another-
That means so much
as just this:
MOTHER



It's you sweet Mother
I'm thinking of-
I'm thinking about
today;
The smile on your
face,
The cheer on your
brow,
Your loving and tender
way;
A mine of gold is not
half so dear,
And you grow
more precious
From year to
year. ~

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Beautiful mottoes are to help you sell more candy in 1923 - - - - -

*Splendid sales records were made
with them - in 1922 - by manufact-
urers, jobbers, and retailers who
utilized this effective new candy-
selling idea - - - - -*

THERE is a real idea—to help you
sell *more* boxed candy than ever
before, in 1923. An idea already
tested, and proved successful in a
big way.

is doing for the candy trade what the
artists have done with flowers. And
\$8,000,000 is spent for flowers on Mothers'
Day alone.

MAKE MOTHERS' DAY CANDY DAY

Easter and Mothers' Day *should* be candy
days. These mottoes simply *remind* people
that candy is a gift every bit as appropriate
as flowers. They are diverting millions
from flowers to candy.

Originally for use Mothers' Day, they swept
the public fancy for Easter too, last year.
Dealers, jobbers, manufacturers had to re-

order in order to supply the big Mothers'
Day demand.

THIS YEAR GET BOTH DAYS

The idea was started late, last year. Yet it
was a big success. This year you are going
to have *big* extra business for both Easter
and Mothers' Day.

Mottoes reproduced here, actual size. All
hand-tinted; glass-covered; richly framed;
with rings for hanging. An assortment of
sizes and shapes.

WRITE NOW FOR PLANS

There are endless ways to use the mottoes
for bigger 1923 sales. Write immediately
for outlined, definite plans; showing how
you can use them, how much it will cost,
and what you can make. Dictate a letter
NOW!

The NATHAN M. STONE Company

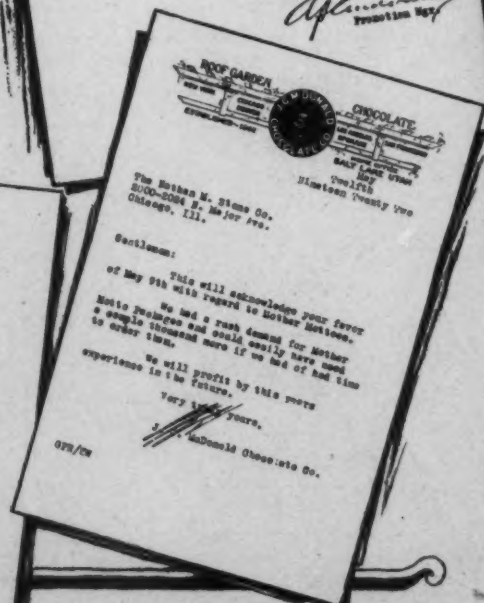
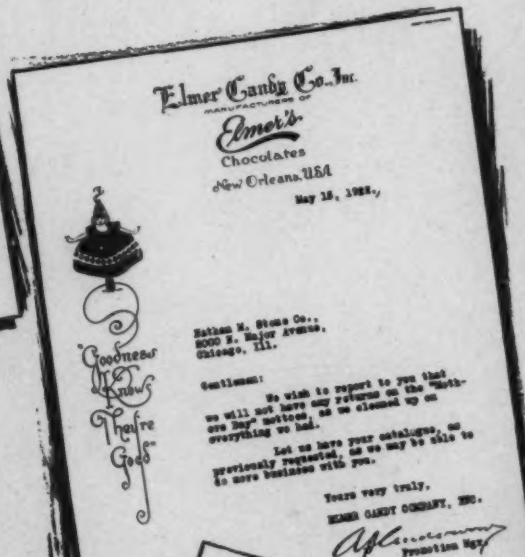
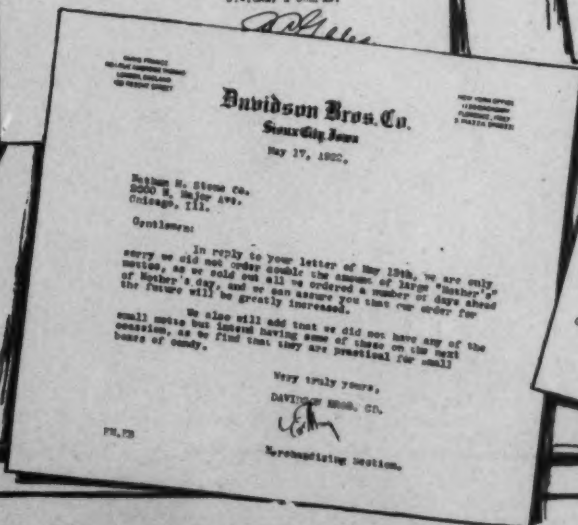
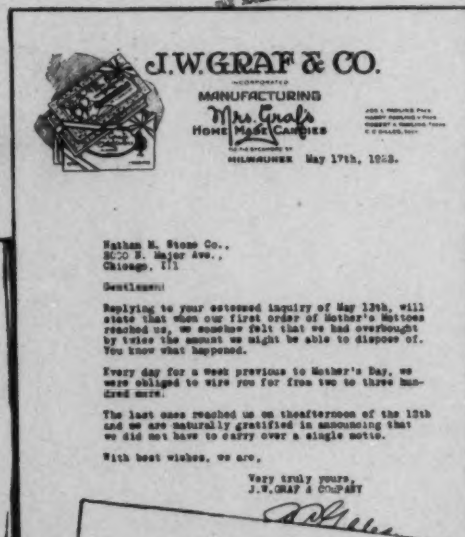
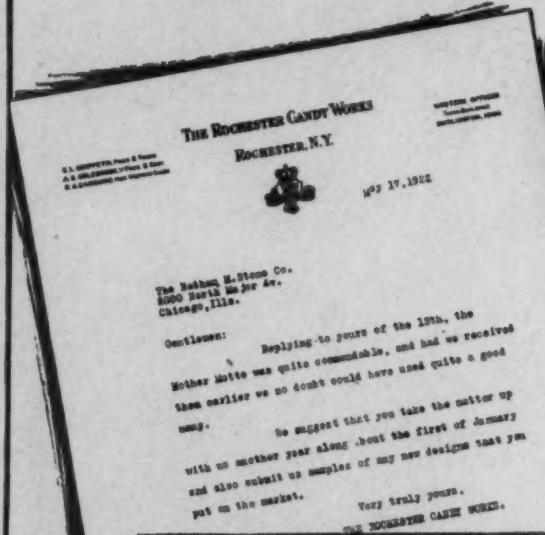
200-2024 NORTH MAJOR AVENUE

CHICAGO, ILLINOIS

he plan was 100%
successful last year
!

These comments are typical of hundreds written by those who used the plan last year. When you finish reading them, dictate YOUR letter to us.

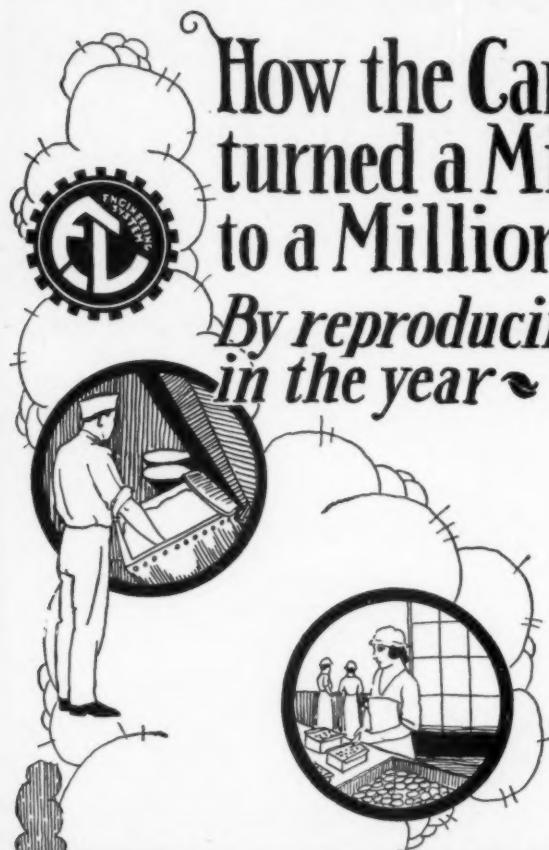
THE NATHAN M. STONE CO.
2000-2024 N. Major Avenue
Chicago, Illinois





How the Candy Manufacturer turned a Million Dollar Loss into a Million Dollar Profit

By reproducing the Ideal Day 365 days in the year



OUR ENGINEERS were called into consultation with one of the largest manufacturers of hard candies in this country. He had orders that had to be delivered and the hot, sultry summer weather made it impossible for him to operate.

It cost him just \$15,000 for every day his plants were shut down, and he wanted to turn that loss into a profit. He wanted to operate his plant 365 days in the year.

Our engineers went over his New York plant. They recommended the proper equipment, and they **GUARANTEED** the results.

Were the results satisfactory?

The answer is found in the fact that he had us equip his western plant a few months later.

What we have done for this candy manufacturer, we have done for many others, and we can do the same for you.

Pick out the ideal day for operating your factory and we will **GUARANTEE** to reproduce it 365 days in the year.

It will pay to investigate.

B. F. STURTEVANT CO.

Hyde Park, - - - Boston

NOTE—The photo shown here is the Air Conditioned Packing Room of his western factory.



W. L. FLEISHER & CO., Inc.
NEW YORK CITY
Design and Install all
STURTEVANT-FLEISHER
Air Conditioning Systems



Sturtevant
PUTS AIR TO WORK



Essential Oils, Fruit Flavor Bases, Cumarin and Vanillin

Seasonable Offerings:

Oil Peppermint, Guaranteed Absolutely Pure and of Finest Flavor

**Oil Lemon and Sweet Orange, F. B., Handpressed
of Unexcelled Quality**

Hard Candy Flavors

APPLE
BANANA
BLACKBERRY
CHERRY (with Pit Flavor)
CHERRY (without Pit Flavor)
CHERRY, Wild
CURRANT, Black

CURRANT, Red
GOOSEBERRY
GRAPE
HONEY
LOGANBERRY
PEACH
PEAR

PINEAPPLE
RASPBERRY
ROSE
STRAWBERRY
STRAWBERRY, Preserved
VIOLET

THE reception accorded to this new group, which we placed on the market only a short time ago, has been gratifying and supports all we claim for them. These flavors are of the highest concentration, have the delicious aroma of the fruit itself and have been manufactured with a special view to permanence and TO WITHSTAND CONSIDERABLE HEAT. In addition to the large

amount of natural extractive matter from the fruits present, the Flavors contain sufficient Ethers, Esters, Vegetable Tinctures, etc., to provide the necessary strength and impart the special characteristics necessary and claimed for this group.

For all other kinds of confectionery, particularly cream work, the following groups have been successfully employed:

TRUE FRUIT AROMA ESSENCES

Extra Concentrated

which represent nothing but the extractive matter of SOUND, RIPE FRUIT; and our

FRITZBRO-AROMES

which are the IDEAL FLAVORS OF HIGHEST CONCENTRATION, based on Fruit Extractions and fortified with other harmless ingredients to accentuate the SPECIAL CHARACTERISTICS of the respective fruit.

With these lines, you can solve ANY PROBLEM of flavoring candies, of whatever kind they may be. Samples and further details will be cheerfully furnished upon application.

Fritzsche Brothers, Inc., New York

Chicago Branch: 33-35 West Kinzie Street

Send for this literature—

It gives practical recipes which
have been tested and proven
by successful
confectioners.

It will help you
make the best
candy,—

So will

KOKOREKA

For Chocolate
Coatings and
Caramels

PLASTIKO

For Fillings

PARASUB

For Easter and
Penny Goods



Our practical demonstrators "Armitage" and "Hickey" are in the field constantly, working with the superintendents and practical men of the candy factories. This is part of our service. Can we be of service to you?

Write for free samples and booklet—"Science in Confectionery;" also for our new special literature "Uses and Abuses of Chocolate Coating," "How to Salt Peanuts" and "Popping Corn with Ko-Nut."

INDIA REFINING CO.

McKeen and Swanson Streets
PHILADELPHIA

Stocks Carried in All Principal Cities

"The Stockings Were Hung by the Chimney with Care"

When the first mother held the first baby in her loving arms and crooned a lullaby, the first home was started.

And when the first hearth-stone was built, and man made a crude covering to protect his fire, the first wee tot hung up his stocking in the hope that "Saint Nicholas soon would be there."

And ever since the first crude confection—made of honey—was sold, candies and cakes have filled stockings, hung the Christmas tree and appeared on the festive Christmas table.

So what would Christmas be if there were no confectioners, no bakers? Think of the lean stockings—the heartbroken youngsters. Think of the thousands of children in institutions—orphans—children who never know a mother's caress or a home Christmas—but each of whom receives at Christmas a box of candy—and cakes made of sugar and spice and everything nice.

And so to the confectioners and bakers millions of children and grown-ups are indebted for a Merry Christmas.

And so in behalf of young and old, Nucoa appoints itself a committee to thank those who contribute so much sweetness to life, and to wish each and every one of them

A Merry Christmas!

THE NUCOA BUTTER COMPANY

Makers of

Nucoa Butter

Nucoline

Plastic Nucoline

Refinery Sales Department

NUCOA BUILDING, 4th Avenue at 23rd Street
NEW YORK CITY



Flavor Value

Value is not composed of a single element; mathematically speaking, it is a function of both price and quality; it can only be computed on the basis of price paid and quality received.

The wise buyer of flavoring ingredients confines his purchases rigidly to sources of supply which guarantee him the maximum return in value, the most economical co-ordination of price and quality.

Flavoring materials recommended by the House of Ungerer meet this requirement to the complete satisfaction of the most exacting purchaser.

We urge exhaustive test of our

OZONE-VANILLIN

OIL PEPPERMINT

OIL WINTERGREEN

OIL ORANGE ITALIAN

OIL ORANGE WEST INDIAN

OIL LEMON SUPERFINE

SIMILE FRUIT ESSENCES

NATURAL FRUIT FLAVORS

CONFECTIONERS' FLORAL FLAVORS

"Our Quality Is Always Higher Than Our Price"

UNGERER & CO., New York

124 West Nineteenth Street

CHICAGO
189 No. Clark Street

PARIS, FRANCE
11 Rue Vezelay



The Christmas Spirit

It knocks at the palace gate and raises the latch of the humblest cottage as it wings its way throughout the world with its message of Good Will.

The Spirit first came more than two thousand years ago—to announce to the lonely shepherds in the hills the birth of a Child.

And ever since on the anniversary of the Child's birth, the Spirit travels o'er land and sea, to great and small, to rich and poor—to remind a speeding, forgetful world that Good Will—a message from Heaven to Man—is still Man's greatest blessing—his greatest asset.

For more than a quarter of a century the American Cocoanut Butter Company has regarded the Good Will of its customers as its greatest asset, and takes this opportunity to combine an assurance of its appreciation with a heartfelt—

Merry Christmas to All!

American Cocoanut Butter Company

Makers of ACOMO, ACOMINE and MAROKO

CHICAGO
127 N. Dearborn St.

NEW YORK
297 Fourth Avenue

To insure prompt service, complete warehouse stocks are maintained at the principal distributing centers

Unseen—Untasted—Unnoticed —Yet All-important!



*"Purest and Best—
It Stands the Test"*

With its identity absolutely lost as concerns the consumer, Gelatine is yet of vital importance to high manufacturing standards

DEVIATION from a standard quality may mar a manufacturer's success. Splendid reputations even of years' standing may be jeopardized through a single deviation in the quality of the gelatine used. By using Atlantic, the super-clarified gelatine, you are insuring permanent high quality and an un-deviating grade of gelatine.

ATLANTIC —the super-clarified— GELATINE

Test Atlantic at Our Risk

Send today for a barrel of Atlantic Gelatine. Don't pay us a cent until you have used five, ten or fifteen pounds. Then, if you decide Atlantic isn't the most economical, finest, clearest and purest unbleached gelatine you've ever used, return the balance of the barrel at our expense. The trial then will have cost nothing.

**Write Home Office or
Branch Nearest to You**

Atlantic has worked out a new process of manufacturing gelatine. Beginning with the very finest of raw materials, we have evolved a super-clarified gelatine. True, our process is more time-consuming, more costly; but the result is the finest gelatine on the market.

Atlantic Costs Less!

So superior in its clarity and purity that it passes the pure food requirements of any state in the Union, it is yet true that Atlantic costs less—actually less—than other gelatines of corresponding grade.

The use of Atlantic means greater economies for you and increased satisfaction to your trade.

ATLANTIC GELATINE COMPANY Woburn, Mass.

NEW YORK CITY
1081 Woolworth Bldg.

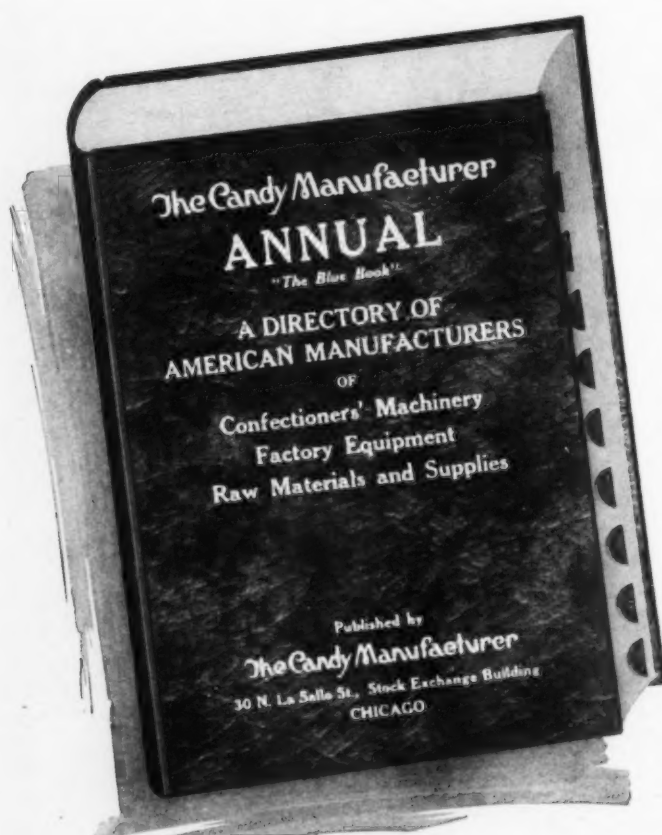
CHICAGO
Suite 510, 118 N. La Salle St.

BALTIMORE
Room 1012, Union Trust Bldg.

SAN FRANCISCO
Room 420 Hansford Block, 268 Market St.

Where to Buy Confectioners' Supplies and Equipment

While this book is being compiled we would be glad to receive inquiries from our subscribers regarding sources of supply or any problem in purchasing. All information in our Buyer's Directory files is at your disposal.



CONTENTS:

In addition to the Directory feature The Blue Book will contain:

An index of all associations, national, territorial, state and local within the confectionery industry, and the national associations in the allied industries.

Rulings, regulations and legislative situation affecting confectionery supplies and products. Statistical information on the industry. Reports and surveys of special value to the purchasing and sales departments.

A review of books, periodicals and technical literature on candy factory management, methods and materials and the industry in general.

A directory of trade names.

The data for this candy manufacturers' buying guide is being compiled and the book will be issued later in the year. In the meantime our subscribers have access to all information in our directory files. We will be glad to receive your inquiries regarding sources of supply.

The Directory Section

of the Blue Book will contain the following classifications:

- Directory of manufacturers of chocolate and candy machinery, refrigerating machinery, factory equipment, tools and utensils.
- Directory of manufacturers and importers of confectioner's colors, flavors, essential oils, gums, extracts and essences, gelatines, starch, corn syrup, molasses, honey, milk products and all raw materials.
- Directory of manufacturers of chocolate coatings, liquors, and cocoa butter; cocoanut oils, butters and cocoa butter substitutes.
- Directory of brokers and importers in cocoa beans, cocoanut, fruits, nuts, etc.
- Directory of sugar brokers and refiners.
- Directory of peanut brokers and growers and manufacturers of peanut machinery.
- Directory of manufacturers of paper boxes, fancy, set-up and folding; candy containers—tin, glass, redwood, baskets, leather, etc.
- Directory of manufacturers of paper box liners, laces, bonbon cups, seals, trimmings, etc., box papers and box tops.
- Directory of manufacturers of box wraps, bar wraps, foils, waxed papers, dipping papers, bags and paper specialties.
- Directory of manufacturers of shipping containers: corrugated, solid fibre and wood boxes, and pails.
- Directory of lithographers and manufacturers of "Dealer Helps" and advertising specialties, window trims, store signs, display cards, hangers, premiums, souvenirs, etc., etc.

The Candy Manufacturer Publishing Co.

30 N. La Salle St., Stock Exchange Bldg.
CHICAGO



A Real Treat—Marshmallows Made With UCOPCO

You will soon be testing Gelatine to determine the product best suited for use in your marshmallow during the coming year.

Then test a brand of Gelatine that is used by many of the largest and most discriminating buyers in the candy field—that's UCOPCO.

It Will Pay You to Investigate

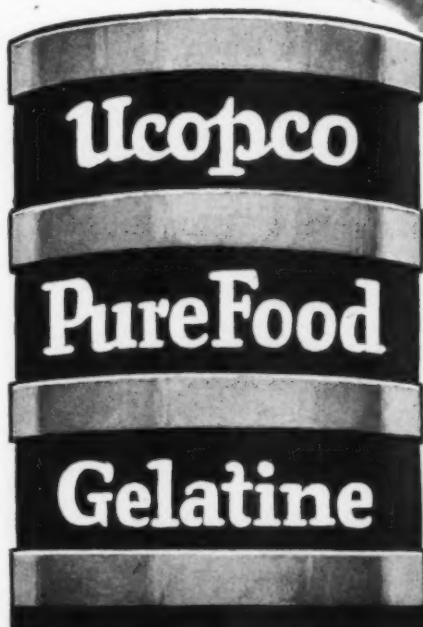
Address any of the offices listed below for samples and let them tell you why it will be to your advantage to use UCOPCO exclusively.

United Chemical & Organic Products Co.

Home Offices
4200 S. Marshfield Avenue, Chicago

Branches
New York City New Orleans San Francisco
Milwaukee Detroit

*"UCOPCO Comes Sealed
in Red Drums"*



Ucopco Pure Food Gelatine



Reducing Costs

RIGHT now the candy maker's problem is not so much that of increasing production as it is of reducing prices. The public hesitates over paying fancy prices for its weekly boxes of bon bons and chocolates.

You can meet this demand without sacrificing either quality or profits. With a proper selection of National Equipment machines, wage totals may be reduced, and great savings of time effected.

Eliminate the hand workers by installing National Equipment, and you can then hold your trade against all competition.

*Write our Service Department
for particulars.*

NATIONAL EQUIPMENT COMPANY

Largest Manufacturer in the World
of Candy and Chocolate Machinery.

SPRINGFIELD, MASS.,

U. S. A.

The Manufacturer's Responsibility in Popularizing the Official Slogan



by **V. L. Price**

Director of Publicity, National Confectioners' Association

MANY inquiries are received as to how confectioners can help in the Candy Slogan Campaign; where they can get cuts of the slogan and other advertising material. Possibly you are one of those manufacturers who want to start using the slogan and are wondering how you can help introduce it. The Publicity Department can be of service to you in this connection by giving you suggestions as to how you can use the slogan and providing you with the necessary advertising material.

When you are ordering another supply of letterheads, envelopes, invoices, etc., have the slogan printed on same. If you advertise in newspapers or trade papers, have the slogan printed in your advertisement, likewise on any circulars you send out to your customers put the slogan on. For this purpose the Publicity Department of the National Confectioners' Association, 208 North Broadway, St. Louis, have a complete stock of slogan electrotypes in one and two colors as listed below. The prices quoted include postage charges and are much less than you can buy them elsewhere. We ordered them in large quantities and are giving you our cost prices. Remittances in check, post office order or postage stamps must be sent with all orders.

Sizes and Prices of Slogan Cuts in One Color

Stock No.	Size	Price
1	1 x 1/4 in.	\$1.00
2	2 x 1/2 in.	1.05
3	3 x 3/4 in.	1.10
4	4 x 1 in.	1.15
5	5 x 1 1/4 in.	1.25

Stock No.	Size	Price
6	6 x 1 1/2 in.	1.35
7	7 x 1 3/4 in.	1.50
8	8 x 2 in.	1.75
9	9 x 2 1/4 in.	2.00
10	10 x 2 1/2 in.	2.25
11	11 x 2 3/4 in.	2.50
12	12 x 3 in.	2.75
16	16 x 4 in.	3.75
20	20 x 5 in.	6.00

If you want the two-color electrotpe the cost will be twice as much as the one color above quoted. Specify in your order the stock number and the quantity you desire.

You will be interested in knowing that the interest and enthusiasm in the Candy Slogan Campaign is progressing splendidly. If you are not already taking part in this campaign and have not started using the slogan, begin now, because it is only by the industry working together that the popularity of candy can be increased through the use of the slogan. Your assistance and co-operation in the introduction of the candy slogan is needed. Don't put it off. Thousands of manufacturers, jobbers and retailers are now using the slogan, "Remember—Everybody Likes Candy," and with your help we can make it as important to our industry as "Say It With Flowers" is to the florists, "Gifts That Last" to the jewelers, "Save the Surface" to the paint industry, and "Concrete for Permanency" to the cement manufacturers.

All orders and letters should be addressed to National Confectioners' Association, 208 N. Broadway, St. Louis, Mo.

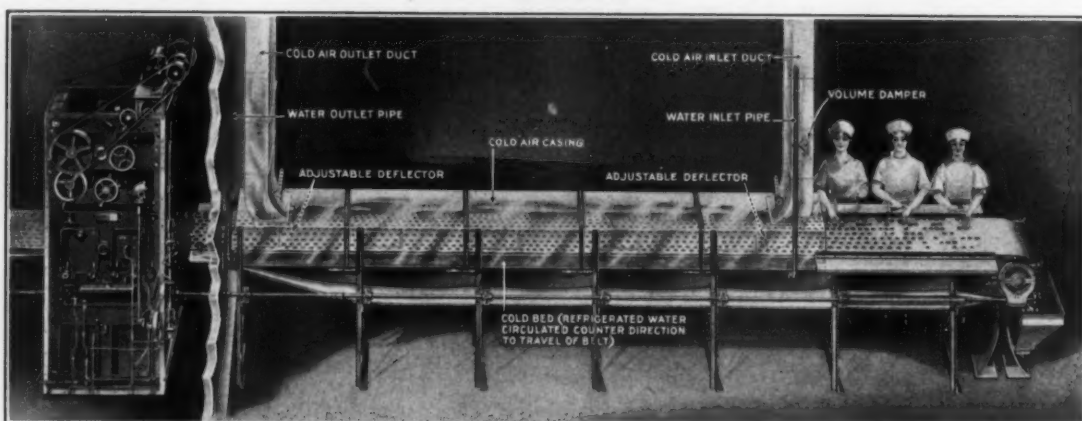


Everybody Likes CANDY

The "Coldbed" Chocolate Drying and Packing Table

Directly Connected to Enrober

Patents Pending



FROM THE ENROBER TO THE PACKER WITHOUT ANY HANDLING

The Enrober delivers its product directly to the belt on the COLDBED Table and, after traveling a distance of 25 or 30 feet in six or seven minutes, the goods have become properly set and chilled, ready to pack. The gloss is unsurpassed and the bottoms have the same fine finish as the top. Packing is done directly from the table.

In operation, the carrier belt travels in immediate contact with a hollow metal table, through which refrigerated water is constantly circulated, so that the bottoms of the chocolates are properly cooled and set. At the same time refrigerated air is circulated through the surrounding casing in direction opposite to the travel of the belt. The air is constantly recirculated in a closed circuit and can be maintained at a much lower temperature than the surrounding atmosphere of the room, securing greater efficiency without discomfort to the operators.

By regulating the flow of the water a perfect relation can be maintained between the temperatures above and below the material.

Perfect results are obtained in such a simple, practical, common sense way that the method will be instantly appreciated by every practical man. With the "COLD-BED" Packing Table there is no intricate machinery. No mechanical parts to get out of order. It is foolproof.

The entire equipment takes but little floor space. It is only twenty inches wide and thirty feet long, including the packing space for six operators. The table being made up in sections, it can be lengthened or shortened at will, so that it can be adapted to a restricted space or to a greater speed of the enrober.

The "COLD-BED" Table is much less expensive in first cost than other methods and also in cost of erection.

The goods having been properly chilled throughout, retain their color and their gloss without any deterioration after packing.

Repeat orders show satisfied customers. (WRITE FOR BULLETIN CB-140)

INCREASED PRODUCTION

REDUCED COST

IMPROVED QUALITY

Also Manufacturers of

The Bentz Air Conditioning Apparatus

The "Chillblast" Refrigerating System


(Patented)

The Bentz Drying Methods for Starch Rooms

BENTZ ENGINEERING CORPORATION

Main Office: 90 West Street, New York

Factory: Newark, New Jersey



EDITORIAL

An Appreciation

AT this season of the year, when the spirit of Christmas inspires us to count our many blessings, we feel a deep sense of gratitude to the manufacturing fraternity of our industry for their responsiveness and hearty co-operation which has been the life blood in the success of **THE CANDY MANUFACTURER**.

THE CANDY MANUFACTURER is paying dividends in forms other than dollars. Besides the satisfaction of pioneering a new idea and ideal in form of a specialized manufacturers' publication and seeing it successfully established and proving its economic importance to the industry, it has been our pleasure and privilege to form a large number of new business friendships of the worth-while sort, which we regard as our most priceless possession. The hearty well wishes and Godspeeds—the genuine kind that can be depended on—have come to us in such volume from all corners of the globe this year that collectively they have actually functioned as a tangible asset.

This tangible recognition and pledges of co-operation from so many of the foremost executives, candy factory superintendents and practical men have been the deciding factor in appropriating sufficient funds for an exhaustive analysis of manufacturing problems in our industry next year and for further extension and development of this magazine, the details of which will be announced in the next issue—the Superintendents' Number. It is our hope that **THE CANDY MANUFACTURER** may always be a contributing factor in the success and happiness of our readers.

Please accept the greetings of the season with our sincere wishes that Nineteen Twenty-Three will bring you greater joy in your work and bigger balance in your bank.

(Signed) The Candy Manufacturer Publishing Company,

Earl R. Allured, Publisher.

Some Causes and Prevention of Off-Color in Confectionery

by **Stroud Jordan, Ph.D.**

Industrial Chemist

The second of a series of articles (as per schedule on opposite page) on a number of subjects of vital interest to every candy factory manager. Our subscribers are invited to send in their questions and comments.—EDITOR.

Exclusively for The Candy Manufacturer

Sugar Boiling

PURE sugar when dissolved in cold water gives a syrup without color, but if this syrup is boiled for a long time a yellow color will first develop, which in turn changes into a brown, and if the heating is continued long enough a brownish black will finally develop. The actual amount of color formed on boiling will depend upon the time, the degree of heat and the percentage of sugar in the finished syrup.

This color change is due to a change in composition of the sugar for the prolonged boiling has caused some of the sugar to become inverted and levulose, which is an equal component of invert sugar with dextrose, is destroyed above 70° Centigrade (158° Fahrenheit) and this destruction increases very markedly as the temperature climbs up. Next to levulose the dextrose is most affected by the heat, but even though the sugar (sucrose) is least affected of the three it will decompose and color very strongly if the heat is kept on too long or reaches too high a point or the solution is not cooled as soon as it is finished.

Every candymaker knows that hot sugar syrup will color if it is not cooled as soon as it is finished, and that white syrups taken off hot and left to stand over night in the container will be yellow in the morning, if they are not cooled before storage.

Importance of Clean Utensils

Even if it were possible to always have perfectly pure sugar and water the kettles used for boiling off the excess water often contain scorched sugar which has been formed by a small quantity of syrup sticking to the coils. This is a positive source of color and should be watched very carefully to prevent contamination. A large amount of this coloring may be eliminated by substituting vacuum kettles for the open type, in which the heat is derived solely from the jacket, but this is unsatisfactory and impractical where production is at its maximum. The time required is so much greater that it would require double the equipment to

make the same amount of product, which is impractical in the ordinary plant.

The coloring may be prevented to a large extent by dissolving the sugar in the water in a low jacketed kettle with constant agitation and then boiling off the excess water in the syrup with a coil and jacket kettle, but it will be necessary to wash the coils with a small quantity of water after each boil to remove adhering syrup and to prevent this from burning. This water may be used in the next melt of sugar and water if the color is good, but if it is off-colored it should be used only in goods where color is of no moment.

Proper Cooling of Syrup

To retard color in the hot syrup it should be cooled immediately, and where a cooler is not available it is an easy matter to connect the boiling kettle to a cold water line so that cold water may be circulated through the coils and jacket as soon as the steam is shut off. This will cool the syrup very rapidly if the flow of water is fast enough and if the temperature of the water is sufficient low.

There are many forms of coolers which are comparatively cheap to make up and which will act very efficiently. A cheap and practical cooler is made by taking a copper evaporator, such as is used in making sorghum or cane syrup on the farms and building a cold water jacket on the bottom of this flat evaporator. In this case the syrup is started from the boiling kettle and flows over the surface of the evaporator in a zig-zag course, since the surface is divided into sections by ribs which are fastened to the sides at alternate ends, and thus the syrup is exposed to the whole surface of the evaporator or cooler. The jacket is a duplicate of the open top of the cooler and water starts in at the opposite end of the jacket from that used by the syrup and travels the same zig-zag path, causing the hot water to run off and out of the jacket directly under the section on which the syrup starts its passage, which insures cold water on the end of the cooler over which the syrup finishes. Any number of modifications of this arrangement may be made very cheaply and without much time.

The Series by Dr. Stroud Jordan

1. Removal—"Decolorizing Carbons and Their Value to the Manufacturing Confectioner."
2. Some causes of color in sugar products and their prevention.
3. Color comparisons and determinations.
4. Commercial colors; their uses and abuses.
5. Standardization of colors for confectioners' use.
6. The manufacture of invert sugar on an ordinary factory scale and the utilization of equipment already on hand for this purpose.
7. Air holes in confectionery and their role in the fermentation of centers and creams.
8. What is a thermometer; why and when to use it?
9. Inversion of sugars in process and the prevention of this reaction.

The Effect of Flavoring Materials

The causes of color which have been mentioned previously are those which will appear in a solution of pure sugar and water, but no sugar syrup is used as such without the addition of flavoring materials and these will differ with each kind of confection made. For convenience we may divide the flavors into acids and acid salts, bases and basic salts, neutral salts and neutral or inert flavors, each of which has a decided effect on the color of the product.

In fruit confections there is always a certain amount of acid and when one makes a confection with a fruit flavor it is necessary to add an acid such as citric, malic or tartaric. Cream of tartar is sometimes substituted but does not give the taste of the acid and is not so good for a flavor, but it has an acid effect on the sugar and if it or either of the acids mentioned are added to a hot sugar syrup inversion will be caused and consequent discoloring, which is very often objectionable.

As an idea of the inverting power of tartaric acid it is necessary to remember that one ounce of this acid will invert seventy-five pounds of granulated sugar dissolved in twenty-five pounds of water by boiling slowly for one-half hour and will leave not more than two and one-half pounds of unchanged sugar (sucrose) in the syrup. Such an invert sugar syrup will yellow very quickly if allowed to stand without immediate cooling and if acids or acid salts are to be used without inversion or coloring they must be added to the finished product in the form of a very concentrated solution in water. This will reduce coloring from this source to the smallest possible amount.

The Effect of Bicarbonate of Soda

There are other types of confections in which it is customary to add bicarbonate of soda or carbonate of soda to the sugar syrup before finishing the confection. In the event that these alkaline salts or salts which will react alkaline on boiling in a water solution are added to a hot or boiling sugar syrup, a yellow color will be formed almost immediately and if boiling is continued for long the color will become very dark.

Salts such as carbonate of soda, bicarbonate of soda, or ordinary lime must be avoided if

it is desired to finish with a pure white product. If it is necessary to use these salts then they should be used in as dilute solution as is practical and added slowly and in the cold, and care taken to keep the solution always on the acid side, which may be regulated by using test paper.

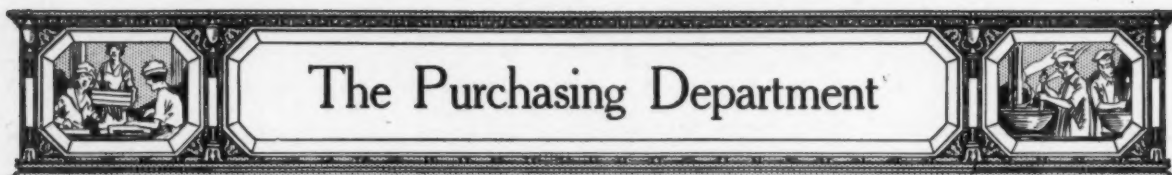
Watch Your Water Supply

Neutral salts often get into the syrups from the water supply and while they are in small quantities will cause a yellowing quicker than if distilled water had been used. It is realized that distilled water is out of the question in most cases, for it will require a fairly large layout for distillation equipment, but if it is possible and practical it will be worth its cost many times over. The supply of water should be well guarded and in the event of water being taken from tanks on the roof, a satisfactory filtering system should be installed to prevent contamination from rust, coal cinders and general dust, which will inevitably be present in a large or small amount, just as care is exercised in protection. If proper precautions are taken with the ordinary water supply, distilled water will not be necessary.

The essential oils and imitation flavors, as well as natural and artificial extracts are more or less inert in color forming unless they contain a large amount of acid or are themselves colored. It is, therefore, necessary to know the character of your flavors and its effect on the sugar syrups and to be on the safe side one should add such material as late in the process as is practical. Flavors are meant to stay in the confection and are not to act as a perfume for the workers and, too, the chance of discoloring from this source is minimized when the addition is made to a cooled product.

Not all confections are white and it is just as essential to have a pure solution of sugar and water to bring your colors out bright as it is to have a pure solution to hold the desired whiteness. A mistake is often made in thinking that off-colored syrups may be used in making colored goods where a different color is used to cover up. The resulting color will be effected by the presence of the undesirable color in proportion to the amount present. Care

(Continued on page 48)



The Purchasing Department

Use of the Laboratory in Selecting Raw Materials

The second of an extensive series of articles on "Purchasing Candy Factory Supplies"

This series is of vital interest not only to the purchasing department, but also to the factory superintendent and all practical men in the industry.

The first article in this series appeared in our September issue. The list of specifications of raw material scheduled for last issue has been postponed indefinitely because we prefer to give this matter the time necessary to complete the list of raw materials and supplement each listing with quality standards, pure food laws and other data from which a buyer can intelligently pass judgment on supplies of all kinds.

This is a big undertaking to do it right and much progress has already been made. When it is completed we will have an encyclopedia of confectioner's raw materials and supplies which will be published in THE CANDY MANUFACTURER Blue Book.

The following article will be a revelation to some confectioners who have not applied laboratory control to their purchasing of raw materials. We would like to have other buyers contribute their experience and comments in purchasing factory supplies.—EDITOR.

Exclusively for The Candy Manufacturer

The Importance of Maintaining a Chemical Laboratory

"Our laboratories know more about the actual how and why of candy manufacturing than any candy concern in the country."

THIS statement was recently made by the manufacturer of one of the most important products used in candy. While it may sound exaggerated, the writer is convinced that the average candy-maker would come away from a visit to these laboratories if not a sadder at least a wiser man. The secret of their knowledge, of course, is the fact that the nature of their product has necessitated an exhaustive study of the candy manufacturer's requirements; but the surprising thing is not that they are so well informed, but that the candy manufacturer has inquired so little into the scientific principles of his trade. In fact, it was a state entomologist who said to one of the writer's colleagues, "If there is any person who should be able to help the confectioner with his entymological problems, it is I; yet you are the first representative of a candy concern to approach me on the vital subject of insect infection."

The recent growth of specialization has given the candy industry a new perspective. We have been among the last to discard old methods

and antiquated machinery. The day of the "rule of thumb" candy-maker has passed and in his place has come the chemical engineer, not a misfit druggist or a half-tutored medic, but a specialist in the science and application of chemistry and its allied subjects. Your chemist must do more than compound chemicals and analyze samples; he must help you decide what to use and how to use it. In short, he is as recently defined by E. I. du Pont de Nemours Company in some of their educational advertising:

"A chemist who can take the discoveries made on the experimental scale of the laboratories and put them into production on the larger scale of commerce. He is the man who has brought to the doors of industry new substances, new uses for long-used substances, uses for products that once were waste, and processes that cut the cost of manufacturing and made possible the century's wonderful strides in commerce."

Translating Test-tubes Into Dollars

But to turn from the vast field of research chemistry to the practical, every-day aspects, an efficiently-conducted and properly-equipped laboratory can save you many times the cost of its upkeep during a year. As in any business, an appreciable part of the profits of

The Complete Serial on Purchasing Raw Materials

1. What to Specify in Ordering Raw Materials.
2. Maximum Use of the Laboratory in Selecting and Caring for Raw Materials.
3. Customs of the Raw Material Trades and Their Relation to the Candy Industry.
4. Care of Raw Materials In and Out of Storage.

These articles on "Purchasing Candy Factory Supplies" no doubt will extend over a period of six to eight months as it will require two issues to cover some of the subjects. A synopsis of the balance of the series will be announced in a later issue.

Inquiries, questions and open discussions, on any phase of Purchasing, from our subscribers will be appreciated. Will the purchasing agents and executives in our industry co-operate in helping us make this series of articles a complete manual for the Purchasing Department of a candy factory.—*Editor.*

candy-making is swallowed up in minor and routine operations. Variations in the quality and strength of successive lots of raw material (tending as they do to throw off the batch) are a constant source of trouble to the manufacturer unless the extent of the variations is immediately ascertained and some means employed to counteract their effect before the material is introduced into the batch.

That many of these discrepancies are indeterminable except by chemical analysis should be evident; yet, you probably know of at least one candymaker among your acquaintances who is accredited with the extraordinary ability to tell exactly how much of each material to use in the batch by the simple expedient of smelling, tasting and looking at it. You will see him take a bottle of an essential oil, for instance, and with a grand flourish, pour some of it into the batch. He tilts the bottle at just the proper second and presto the batch is made! Now, all five senses working in unison could not have told him the strength of that oil, or for that matter, the amount he put in. If, nine times out of ten, he gets in about the right quantity, he is considered a "crack" candymaker; while if on the tenth time the candy is over or under-flavored, the quality of the oil is immediately condemned.

It is common practice among essential oil houses to employ their high-testing oils to bring up to government standard the quality of their undergrades. This is particularly true in the case of peppermint where oils of 60% menthol are highly prized as "doctors" for oils testing lower than 50. This margin of from 50% to 60% in the aromatic constituent means a variation in flavoring strength of anywhere up to 20%. Think what this means to the candymaker! A chemical analysis of each new lot of oil provides him with the only dependable means of controlling the flavor of his batch and in many cases furnishes the basis for a substantial saving in the quantity of oil required. Likewise it is true in the making of caramels that where the milk ingredient is "off," additional cooking is required to bring the batch to the desired consistency. Here is

additional labor with no corresponding gain.

This constant vigilance in checking up deficiencies and taking advantage of overages on raw material is one of the chief means by which the laboratory can help you to save money. The services of outside laboratories in carrying on this work for you, cannot be recommended too highly, though, of course, they are not always on the spot when you want them, nor are your samples likely to be the first in line. While it is probably the continued expenditure of five, ten or twenty-five dollars for outside consultations, which ultimately tempts the manufacturer to do without their services, it is important to realize that any kind of laboratory protection is better than none at all—a form of insurance without which the dread spectre of Overhead takes silent toll.

The physical characteristics of incoming raw materials are as much the concern of the laboratory as the chemical. They are the obvious details of appearance, flavor, count, percentage of pieces, shells, dust, etc. The buyer looks to the superintendent to report them and the superintendent takes it for granted that the buyer knows all about them. The result is that the most apparent discrepancies are often overlooked until it is too late to obtain redress. For the chemist to include an accurate resume of these details in his regular routine report requires but a small amount of additional effort, which is amply repaid by the advantages to be gained.

The Moral Effect of Maintaining a Laboratory

Not so long ago when one of the chain store companies was about to open a candy store in New Haven, they extended an invitation to the "Times-Leader" to visit their laboratory. The reporter delegated to represent the paper returned from his visit much impressed. Forthwith there appeared a front-page news item extolling the wholesomeness of this concern's candy and telling what a wonderful thing it was that New Haven was to be favored with a store; little wonder that the city turned out in numbers on the opening day. While it would be impossible for the average manufacturer to

profit by such an advertising maneuver, it is something to be able to advertise "We not only think our candy is pure, we know it to be pure." The moral effect on the public of knowing that your guarantee of purity and wholesomeness is backed by laboratory analysis is perhaps of even greater importance than the actual saving in dollars and cents.

Old timers in the candy game will recall the slumps in sales which have always followed poison candy scares. Was it not only this summer than the Shelburne Restaurant was forced out of business by the unaccountable presence of arsenic in huckleberry pie? A single incident of this kind might easily prove fatal to the most firmly established candy business. Against such a catastrophe your laboratory is the most effective protection so far devised.

In my previous article I dwelt somewhat in detail upon the moral effect of specifications on the supplier. Your supplier will not lightly disregard this part of your order nor consider it a mere matter of form when your laboratory's report accepting or rejecting his goods depends upon their conformity with these specifications. Nor will your suppliers fail to appreciate the co-operation which your laboratory can give them in adapting their products to meet your needs.

Helping the Buyer Work Out His Specifications

Since the character and extent of the laboratory's experiments on raw material are determined largely by the buyer's specifications, it is decidedly important that the chemist have a hand in determining the standards by which his subsequent work must be governed. Various factors enter into the consideration of raw materials which affect their value for use in candy. Besides those already mentioned, there are such things as shrinkage, absorptive power, percentage of organic impurity, etc. The chemist should report to the buyer the exact proportion in which these factors influence the value and consequently the price of the raw material so that the buyer may arrange his specifications accordingly.

Rescuing the Sample for a Scientific Work-Out

The outcome of scientific purchasing has been to subordinate the salesman to his sample. When you consider the millions of dollars invested annually in samples, the need of some method of investigating them without disrupting the factory schedules, becomes apparent. Yet it is doubtful whether 10% of the samples left with buyers ever get closer to the product than the nearest waste receptacle. Not that the buyer does not mean to put them to some sort of a test, but just about the time they begin to pile up so that he cannot see over his desk he will be seized with a sudden spirit of orderliness and sweep the whole business into the waste basket.

Unless they have some immediate significance, the samples will suffer the same fate at

the hands of the superintendent, and it therefore devolves upon the chemist, dedicated as he is to a life of "lab" books and written reports, to rescue the samples for a scientific workout. He will tell you how they compare with the materials you are using; whether they should lower your labor cost or give you greater yield; whether they should stand up longer or carry better in the product; whether they can improve your candy in any way. Or, these features lacking, they may suggest some way in which the present materials may be made more useful to you. But even if the samples do nothing more than to teach you to beware of some new fraud which is being perpetrated, the work of the laboratory has not been in vain.

Nor does the chemist's interest in the sample stop here. Where his preliminary experiments hold promise for some new material, he should be equipped to make a test batch in his laboratory, later carrying the experiment into the factory proper.

If there is to be any saving of samples on materials which the buyer has already purchased, it should be the chemist's duty to look after them, sterilizing them where necessary and preserving them under uniform conditions until the shipments of which they are a part, arrive.

Checking Up On the Incoming Raws

We have come to what is perhaps the most critical point in the selection of raw material. The action which the laboratory takes at this time determines the effectiveness of the buyer's specifications. If the inspection is performed hastily or carelessly, you will have forfeited your one big chance to maintain a uniform standard of quality. Of immediate consequence is the physical condition in which the goods arrive. Evidences of mold, rot, or insect infection; rancidity or sourness; fermentation or organic decomposition should be passed upon in strict conformity with the specifications. Defects of this kind furnish, in most instances, sufficient cause for rejection.

Any other physical defects which may be present become apparent during the course of this examination: they are such things as poor appearance, odor or flavor; faulty consistency or texture; presence of foreign or inorganic matter; percentage of unsound or imperfect material, or organic refuse; or discrepancies in size, count, weight or specific gravity. The extent to which the goods vary from the fixed limits prescribed by the specifications determines the basis for claim or rejection.

It may be noted, however, that a slight variation from the specifications on the order may occasion a far greater loss than would seem to be proportionate; for example, large handlers of dates have found that such comparatively minor factors as stickiness or crumbling invariably cause serious loss in production because

of the longer time required to work the fruit up, curtailment in some cases amounting to 30 to 40%.

The chemical and bacteriological analyses comprise a distinct phase in the examination of the incoming raw material. They provide the greater part of the routine work of the laboratory and have proved indispensable at some point or another to practically every manufacturing confectioner. The influence of the several factors which these analyses seek to control is perhaps best illustrated by example.

Deficiency of Valuable Constituents

The quality, and, of course, the price, of many materials is determined to a large extent by the measure of one or more valuable constituents. The commonest example is butterfat in milk products, the price usually varying in direct proportion with the amount of fat the product contains. Similarly, materials like raw sugar, sugar syrup and molasses are rated according to "polarization," which is an indication of their sugar content; cocoa and chocolate products are rated according to cocoa-fat content, while essential oils like clove, peppermint, lemon and lime are affected both as to quality and price by the content of their respective aromatic principles, eugenol, menthol, and citral.

Excess of Undesirable Constituents

Just as important is the presence of those constituents which detract from the value of the material or tend to hasten the processes of deterioration. Three years ago, when oil of peppermint was selling at seven dollars a pound, a confectioner went in for a substantial commitment of the natural oil. The sale was accompanied by the usual certificate of analysis which, while apparently complete in other respects, failed to reveal the presence of a dangerously high percentage of peppermint terpenes.

The terpenes oxidized rapidly and completely ruined the oil. After exhausting every possible means of salvage, the lot was sold to a manufacturer of cheap toilet preparations at about five cents on the dollar. This omission would not have occurred had the oil been subjected to the quantitative tests of the manufacturer's own laboratory. An excess of crude fibre in chocolate or free acid in oils and fats are other objectionable features which would be brought to light during the laboratory's analysis.

Substitutes and Adulterations

Although many of the substitutions practiced upon raw material today neither impair the usefulness of the material nor destroy its wholesomeness, it is essential that the buyer know the exact nature of each adulteration as well as the extent to which it is employed. An instance in point is the use of salt to cut prim-

ary colors and serve as a base for secondary shades.

Provided the buyer is aware that his purchase is, let us say, 50% salt, and judge the price accordingly, there is nothing whatever to be lost by the adulteration. Of a far less justifiable character is the concealed employment of apricot and peach kernels in almond paste; of cocoanut fat in cocoa butter; cane sugar in honey or maple syrup; corn syrup in sugar syrup or molasses; the admixture with essential oils of other oils or fractions of their least valuable constituents, terpenes and the like, or the fortification of these oils with synthetic reproductions of their respective flavoring principles. Fortunately for the buyer, however, these deceptions are seldom encountered in dealings with reputable suppliers.

Preservatives and Colors

The character and quantity of preservative contained in foodstuffs is a matter of serious concern to the public health. The various state and national laws, while differing widely on the general aspects of the subject, firmly oppose the employment of certain classes of preservative.

Formic acid in fruits and boric acid in liquid egg yolk, for instance, are tolerated abroad but forbidden in this country. Glace fruits and maraschino cherries, which contain a reasonable percentage of sulphur dioxide are permitted to enter every state in the union except Pennsylvania, which rigidly enforces the ruling "not a trace"; this, despite the fact that the same state allows the use of sulphur in dried fruits such as prunes, peaches, raisins and apricots. The Department of Agriculture, in turn, condemns the use of sulphur in corn syrup, but permits it to be used in raw sugar. How important are these technicalities to you?

It was not so very long ago that a man sold a quantity of marshmallows to a firm in Pennsylvania. They were found to contain slight traces of sulphur dioxide, undoubtedly introduced by the gelatine used in their manufacture. The resulting fine of \$700 and the unpleasant notoriety which went with it were more than adequate punishment for his ignorance or neglect.

A preservative not uncommonly found in milk or cream is formaldehyde and although its employment is usually attributed to dealers, it is not infrequently found in the farmer's medicine chest labelled as some sort of a patent "doctor." Similar agents are sometimes employed in canned goods to prevent swells. Needless to say, agents like formaldehyde do not prevent deterioration, but simply destroy the physical evidences of it, while permitting the tearing down processes to take place in other more insidious and less easily recognized forms.

A vendor of molasses once had the temerity

(Continued on page 49)

Digestibility of Raw Starches

by C. F. Langworthy and Harry J. Deuel

From the Department of Home Economics, States Relations Service, U. S. Department of Agriculture.

This article is of special interest and significance to our industry because of the fact that a certain quantity of raw starch is present in the finished candies, especially marshmallow and cast centers. This article should be added to your file entitled "Candy Is a Food," where you can refute the attacks which have been made on the digestibility of raw starches.—EDITOR.

Introduction

IT has been generally believed that raw starches are only digested a little, if at all, by the human body. Thorpe, quoting from Roberts, says that starch in a raw state "is to man an almost indigestible substance, but when previously subjected to the operation of cooking it is digested with great facility." He further states that "diastase has, at best, only a comparatively feeble action on the unbroken starch granule, even at the temperature of the body."

Little experimental evidence is to be found regarding the digestibility of raw starches by the human body. Fofanow conducted a series of experiments on human subjects with small quantities of raw wheat, oat, rice, and potato starches. He found that raw wheat, oat, and rice starches were practically completely assimilated, while raw potato starch was from two and one-half to four times less well digested. However, in his tests he used only 50 gm. of raw starch, a quantity which might easily be lost in the digestive tract. Numerous artificial digestion experiments have been conducted on raw starches which in general have demonstrated that raw starches are much more slowly acted on by the digestive ferments than starches which have been cooked (Day, E. A., U. S. Dept. Agri. Bul. 202, 1908).

Experimental

The methods in the experiments with corn, wheat, and potato starches were practically the same as in previous digestion experiments conducted by this office. In order that the starch should be in an appetizing form, it was eaten as a constituent of a frozen pudding. This was palatable and the subjects were able to eat it in fairly large quantities.

The frozen pudding contained approximately 20 per cent of raw starch and resembled ordinary ice cream in taste and texture. This method of preparation did not affect the starch granules which were found by the Microchemical Laboratory of the Bureau of Chemistry to be neither swollen nor broken. The pudding was made as follows:

Experimental Frozen Pudding

6 quarts milk.	2½ cups sugar.
4 pounds raw starch.	1 tablespoon salt.
3 cups table oil.	½ cup lemon extract.

The uncooked starch was mixed with milk, sugar and oil in the proportions given above and the mixture immediately frozen in the same way as ice cream. The lemon extract used for flavoring masked to a great extent the taste of uncooked starch and gave the frozen pudding a pleasing flavor.

The subjects were given weighed portions of the frozen pudding along with a basal ration of oranges and sugar. Tea or coffee was used if desired. The experiments were of 3 days, or nine meals duration. The subjects were students in a local university who were apparently in normal health. They were familiar with this type of work, having served as subjects in previous experiments and were entirely trustworthy. The methods for the separation of feces, analyses, etc., were those usually followed.

Corn Starch

The diet as a whole supplied on an average 31 gm. of protein, 104 gm. of fat, 426 gm. of carbohydrate, and had an average energy value of 2,760 calories per man per day. The average amount of raw corn starch eaten per man per day was 241 gm. Subject H. L. G. in Experiment 1048 ate the maximum amount of raw corn starch, which was 258 gm. per day for the experimental period.

The coefficient of digestibility of the raw corn starch was found in each case to be 100 per cent after correction is made for the undigested residue from the accessory foods. This was confirmed by the Microchemical Laboratory of the Bureau of Chemistry, which reported that no unruptured starch grains could be detected in the feces and that the iodine test for starch in the feces was negative.

The ingestion of this frozen custard caused no noticeable physiological effects and the subjects were in normal health during the experimental period. They reported the diet as appetizing and satisfying, a fact which would indicate that the starch was assimilated to a great extent by the body.

Potato Starch

Seven experiments were conducted with potato starch—two in one test and five in a second test a few weeks later. The two subjects who took part in the first test had taken part in the experiments with raw corn starch. In the

second test with raw potato starch these men were joined by three others, one of whom had taken part in the experiments with raw corn starch.

The diet as a whole furnished on an average 23 gm. of protein, 76 gm. of fat, 357 gm. of carbohydrate, and had an average energy value of 2,213 calories per man per day. The average amount of starch eaten per man per day was 194 gm.

The amount of potato starch digested varied considerably with the different subjects and even with the same subject in successive periods. Subject J. F. S., in Experiment 1082, showed the higher coefficient of digestibility (95.2 per cent), while Subject E. L. M., in Experiment 1081, showed the lowest (62.3 per cent). Subject H. L. G. in the first test ate 573 gm. of raw starch, of which 74.5 per cent was digested. In the second test the digestibility increased to 85.4 per cent despite the fact that 120 gm. more of potato starch were eaten than in the first. On the other hand, Subject E. L. M., in the first test, ate 503 gm. of raw potato starch, of which 74.3 per cent was digested, while in the second only 62.3 per cent of the 710 gm. eaten was digested. There seemed to be no definite relation between the amount eaten and the amount digested. A possible explanation of the variation in the ability of the various subjects and of the same subjects in different periods to digest the raw potato starch may be that the body was unable to supply a large amount of analyses in a given time to digest all the raw starch.

During this diet practically all the subjects noted a very excessive formation of gas and frequent intestinal cramps. The quantity of feces voided was very large; a large amount of undigested starch was visible and a strong positive reaction was given with iodine. When the feces were ashed, the odor resembled that of scorched bread and no fecal odor was evident. The figure for the digestibility of protein is probably too low, since only a small amount was eaten and no correction has been made for metabolic nitrogen in the feces. The coefficient of digestibility for the cream and corn oil was 95.7 per cent. This agrees closely with previous determinations by this office which were 96.9 per cent for cream and 97.9 per cent for corn oil.

Wheat Starch

Four experiments were conducted to determine the digestibility of raw wheat starch. All four of the subjects had taken part in the tests with raw potato starch and two in the earlier ones with raw corn starch.

The diet as a whole furnished an average of 22 gm. of protein, 68 gm. of fat and 359 gm. of carbohydrate per man per day with an average fuel value of 2,138 calories. The average amount of raw starch eaten per man per day was 188 gm. The subjects remained in appar-

ently normal health during the diet period. It will be noted that practically all the wheat starch was assimilated in each case. No starch could be detected in the feces by the iodine test. Moreover, the other constituents were very well assimilated, the coefficients of digestibility being 92 per cent for protein and 94 per cent for fat.

Summary

1. Raw corn and wheat starches were found to be completely assimilated and no trace of them could be found in the feces.

2. Seven experiments on raw potato starch gave value for its digestibility varying from 62.3 to 95.2 per cent; the average was 78.2 per cent.

3. The ingestion of the potato starch caused disagreeable physiological disturbances not noted in the other experiments with raw corn starch and wheat starch.

4. The digestibility of the other constituents of diet was not affected to any great extent by the large amount of raw starch ingested.

Mr. Roy O. Ashenfelter of Chicago has joined the forces of the sales organization of the American Candy Co. of Milwaukee. Mr. Ashenfelter will cover a portion of New York, Pennsylvania, West Virginia, Maryland and the Southern States. Many will remember Mr. Ashenfelter, who has been in the Chicago territory for the past eleven years.

Logan Candy Company was recently incorporated in Houston, Texas. They plan to build a new factory. This expansion to care for increasing business has been contemplated for some time.

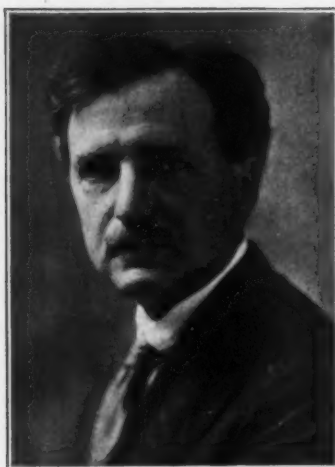
Under the direction of C. A. Baumann of Jefferson, Wis., the Wisconsin Food Products Company is remodeling the large building that was formerly a refrigerator house for the Heger Brewing Company. Upon its completion this building will be a thoroughly modern and sanitary candy factory. The company will make a specialty of manufacturing hard candies for the grocery and bakery trade.

The Walker Candy Company of Muskegon, Mich., plan to begin work in the very near future on a large warehouse at Owosso, Mich., and will use this as a distributing point for Central Michigan.

F. B. Wells has recently started a modern factory at Knoxville, Tenn. Mr. Wells plans to sell to the wholesale trade.

The Fulton County Candy Company recently organized at Gloversville, New York, has leased the factory formerly occupied by a silk mill and have installed candy making machinery. The factory occupies two floors of the building. The company will cater to the jobbing and wholesale trade.

W. E. Graham of Chicago died on November 29th. Mr. Graham will be remembered as a salesman for the past three years for Senneff-Herr & Company, Sterling, Ill., and covered the territory of Wisconsin, Indiana and Ohio.



W. W. SKINNER

Food Flavors

Source, Composition and Adulteration

The fourth of a series of five articles

by **W. W. SKINNER**

*Assistant Chief, Bureau of Chemistry
U. S. Dep't of Agriculture*

and

J. W. SALE

*Chemist in Charge Water and Beverage Laboratory,
U. S. Bureau of Chemistry*



J. W. SALE

PART IV

THE great majority of the products which have been described in this series of articles and those which follow, yield essential oils in which the flavor of the fruit, rhizome, wood, leaf, flower or other part of the plant is present in a highly concentrated form. The term "oil" is, of course, very broad and is applied generally to liquids which are insoluble or nearly so in water, and which are of vegetable, animal or mineral origin.

Essentials Oils and Fixed Oils

The oils of vegetable origin are usually divided into two classes, namely essential or volatile oils, and the fixed oils. The latter, such as olive oil, peanut oil, and corn oil are of great importance from a food standpoint, as dressings for food, vehicles in the manufacture of non-alcoholic flavors, etc., but they possess little or no flavor and are entirely different in composition and properties from the essential or volatile oils which are used for flavoring.

For example, when the kernels of bitter almonds are ground and pressed cold at a pressure of 350 atmospheres, about fifty per cent of a bland fixed oil is obtained which consists chiefly of the glyceryl ester of oleic acid, and which is used especially for pharmaceutical purposes. When the pressed cake is ground, mixed with water and distilled, an odorous essential oil is obtained which consists chiefly of benzaldehyde. These two oils, obtained from the same kernels, have nothing in common except that both have the general appearance of oils.

Other fruits yielding both fatty or fixed oils and essential or volatile oils are apricot and peach kernels and mustard seeds. Some years ago it was a more or less prevalent custom to apply the term "oil" to solutions of synthetic flavoring chemicals, such as the esters of amyl and other alcohols. The resulting pro-

ducts were labeled apple oil, blackberry oil, currant oil, grape oil, gooseberry oil, etc. These names were, of course, untrue and misleading as applied to such articles, and the practice has been discontinued, since it is illegal under the provisions of the Food and Drugs Act.

PART V

Characteristics of Chemical Compounds

In these articles it has been necessary to employ chemical terms, such as myristic acid, geraniol, methyl anthranilate, citral, carvone, safrol, camphene, dadinene, gaultherine, and cocaine in setting forth the composition of the flavors. These chemical compounds belong to well recognized groups and if a general knowledge of the characteristics of the groups is had, the enumeration of the individual constituents will appear to be less confusing to the lay reader.

Of the ingredients just enumerated, myristic acid, as the name indicates, is an acid, genaniol is an alcohol, methyl anthranilate an ester, citral an aldehyde, carvone a ketone, safrol a phenol, camphene a terpene, cadinene a sesquiterpene, gaultherine a glucoside, and cocaine an alkaloid.

Organic acids, which comprise the first of these groups may be divided up into a number of sub-groups, but as a group they are all characterized by the presence in their structural formulas of a specific aggregation of atoms, termed the carboxyl radicle, the chemical symbol of which is —COOH . Radicles, such as hydroxyl, carbonyl, carboxyl acetyl, aldehyde, are aggregations of atoms which act like single atoms and which often remain unchanged throughout a whole series of chemical operations. The so-called fatty acids, such as acetic, butyric, caproic, myristic, palmitic and oleic acids, all of which have been mentioned either as such or in the form of their salts, contain one carboxyl radicle, while the aromatic series of acids, such as benzoic and anthranilic may con-

tain one or more such radicles. Ordinarily, the ingredients of this group are termed acids, as, for instance, myristic acid, and are thus automatically classified.

Alcohols and Phenols

The alcohols, of which there are a great number, and the phenols are organic compounds which are characterized by the presence in their structural formula of one or more hydroxyl radicles designated chemically as $-\text{OH}$. Those alcohols and phenols in which we are especially interested from the standpoint of flavors, and which are mentioned in this series of articles, have names ending in "ol," which is a general means of recognizing the two groups, although there are exceptions to this rule. The following alcohols have been enumerated: borneol, citronellol, didihydrocarveol, farnesol, geraniol, linalol, menthol, nerol, nerolidol, terpinenol, and terpineol. The following phenols or derivatives of phenol have been enumerated: anethol, carvacrol, estragol, eugenol and iso-eugenol, safrol, and thymol. While both alcohols and phenols possess in their structural formulas the hydroxyl radicle, they have, generally speaking, very few properties in common, due to the fact that the way in which the hydroxyl radicle is combined in the alcohols is very different from the way in which it is combined in the phenols. For example, the phenols as a class are very markedly acid, while the alcohols are not.

Esters

Esters are combinations of alcohols with acids, water being eliminated in the process of combining. For instance, methyl anthranilate, the well known synthetic grape flavor, is a combination of methyl alcohol and anthranilic acid, although, of course, it can be manufactured in another way. We have mentioned specifically certain esters in these articles as follows: benzol acetate, geranyl acetate, geranyl tiglate, linalyl acetate, methyl anthranilate, methyl salicylate, myristicin, neryl acetate, terpinyl acetate.

Synthetic esters have been for many years important constituents of imitation flavors. For this purpose, the methyl, ethyl, butyl and amyl esters of acetic, butyric and valeric acids have been quite generally used.

Aldehydes and Ketones

Aldehydes and ketones contain in their structural formulas the following aggregation of atoms respectively: $-\text{CHO}$ and $=\text{CO}$ and are derived from alcohols. Some of the aldehydes, such as benzaldehyde, cinnamic aldehyde and vanillin are made synthetically on a large scale and are of great importance to the flavor and perfumery industries. Synthetic aldehydes of a fruity type, such as the high carbon aldehydes have in recent years attracted the favorable attention of manufacturers of beverage flavors.

Another important aldehyde, namely citral, is obtained from lemon grass oil and is of value

for the manufacture of imitation lemon flavors, and for other purposes. Quite a number of aldehydes have names ending in "al." The following aldehydes and ketones have been mentioned: aldehydes—citronellal, cumic aldehyde, furfural, monyl and decyl aldehydes; ketones—camphor, carvone, diacetyl, jasmone and thujone.

Terpenes and Sesquiterpenes

Terpenes are compounds of the general formula $\text{C}_{10}\text{H}_{16}$. They are for the most part volatile liquids and do not usually have much odor value in themselves. The sesquiterpenes are compounds of the formula $\text{C}_{15}\text{H}_{24}$, which are of higher specific gravity, boiling point and refractive index than the terpenes. The terpenes form a large proportion of a great number of essential oils. Lemon and orange oils, which are quite similar in composition, contain over 90% of terpenes and sesquiterpenes. When all or nearly all of the terpenes have been removed from these oils the resulting products are known as terpeneless oil of lemon and terpeneless oil of orange, respectively. The terpenes, camphene, dipentene, limonene, phellandrene and pinene, and the sesquiterpene cadinene have been mentioned.

Glucosides

The glucosides are a group of vegetable substances which are changed into two or more substances, one of which is a sugar, under the influence of a dilute acid or of those unorganized ferments called enzymes. The true nature of glucosides has not been established. We have referred to the glucosides, crocin, gaultherin, gentiopierin, glycyrrhizin, and sarsaponin. Amygdalin may be mentioned also, since on hydrolysis under the influence of the ferment emulsion it yields benzaldehyde, an important flavor, dextrose, and hydrocyanic acid.

Alkaloids

In a general way, an alkaloid may be defined as a basic nitrogenous substance, of vegetable origin, which has some important physiological action. In this discussion we have referred to the alkaloids, caffeine and theobromine.

Of these groups of compounds, the alcohols, esters, aldehydes, ketones and phenols are very generally odorous and consequently they and their derivatives are of the greatest importance to the flavor and perfumery industries. The acids, terpenes, sesquiterpenes, glucosides and alkaloids, usually possess little or no odor, but may be of value because of their fixative properties, because they are necessary for the production of odoriferous compounds or because of their physiological action.

Peppermint

Peppermint is the leaves and flowering tops of *Mentha Piperita* Linne. There are at least fifteen different species of the genus *Mentha*, of which there are numerous varieties. Peppermint is a perennial, herbaceous plant, producing

stolons. It grows wild in almost all countries of the temperate zone, but the principal commercial supplies of the oil are produced in the United States and Japan. In this country it is cultivated especially in Michigan, Indiana and New York. About 325 pounds of peppermint will usually produce a pound of oil in commercial practice, but the yield varies. Peppermint oil, according to the United States Department of Agriculture standard, should contain not less than fifty per cent by weight of menthol and peppermint extract is defined as the flavoring extract prepared from oil of peppermint, or from peppermint, or both, and contains not less than three per cent (3%) by volume of oil of peppermint extract is defined as the flavoring oil are used in flavoring beverages and confectionery. Peppermint leaves are frequently adulterated with spearmint leaves prior to distillation of the essential oil.

Spearmint

Spearmint is defined by the Department of Agriculture as the leaves and flowering tops of *Mentha Spicata* L. The herb is a perennial, a native of Europe and Asia, but has become naturalized here and grows in moist places throughout the eastern and middle-western portions of the United States. It has been estimated that the total area of peppermint and spearmint under cultivation in 1914, in Michigan, Indiana and New York, was about 25,000 acres, of which nearly 5,000 acres were spearmint.

The plant, or the oil obtained from it, is used to flavor mint sauce and other food, chewing gum and confectionery, especially chewing gum. The yield of oil from the plant is highly variable, but a fair average yield is probably about thirty pounds of oil per acre.

Tonka

The tonka bean is the seed of *Coumarouna odorata* Aublet, a large tree growing in Guiana and northern Brazil. The fruit is an oblong ovate pod containing a single bean, which has a dark brown brittle skin and a light brown oily kernel. The active principle of the bean is coumarin, the aldehyde of coumarin acid, which has a fragrant odor and bitter taste and which occurs in the bean up to 3%.

Coumarin occurs also in deer's tongue, a herbaceous plant growing in North Carolina, and in smaller amounts in numerous other plants. Synthetic coumarin is an important article of commerce. It can be manufactured from salicylic aldehyde, acetic anhydride and sodium acetate, also by the action of phenol on malic acid. Synthetic coumarin is largely used for flavoring in the place of tonka beans, especially in the manufacture of vanillin and coumarin flavors and of imitation vanilla flavors.

The fatty substance of tonka beans, called tonquin butter, is said to be an article of commerce in Holland. Tonka extract is the flavoring extract prepared from tonka bean, with or

without sugar or glycerin, and contains not less than one-tenth per cent (0.1%) by weight of coumarin extracted from the tonka bean, together with a corresponding proportion of the other soluble matters thereof.

Vanilla

The vanilla bean is the dried, cured fruit of *Vanilla planifolia* Andrews. The vanilla plant is a native of the West Indies, Mexico and South America and is extensively cultivated in Mexico and in the islands of the Indian ocean off the east coast of Africa. The term Bourbon is applied generally to these island beans.

The Tahiti beans and so-called vanillons are the fruit of the wild vanilla pompana, and are very much inferior to the Mexican and Bourbon beans. The vanilla plant is a climbing parasitic perennial belonging to the orchid family. The beans, which are long, slender and waxy, are put through a curing process which develops the desired aroma. This process, applied by native workers, is rather crude and results in the marketing of beans which vary greatly in quality.

One of the principal constituents of the vanilla bean is vanillin, which is also made synthetically in large quantities by the oxidation of eugenol, the chief constituent of oil of cloves. Vanilla is one of the most highly prized of all flavors and enormous quantities of the beans are imported for the manufacture of extracts and flavors in liquid, powdered and emulsion forms. Vanilla extract is the flavoring extract prepared from vanilla bean, with or without sugar or glycerin, and contains in one hundred cubic centimeters the soluble matters from not less than ten (10) grams of the vanilla bean. Adulterations of the extract or flavor consist in the addition of synthetic vanillin, synthetic coumarin, and of extracts of tonka, Tahiti beans or vanillons.

Wintergreen

Oil of wintergreen is the volatile oil distilled from the leaves of the *Gaultheria procumbens* L., a small shrubby evergreen plant, widely distributed from Newfoundland to Georgia. Local names for this plant are checker-berry, tea-berry, aromatic wintergreen and mountain tea. The yield of volatile oil from the fresh leaves is from about 0.5% to 1.0%. The oil is produced by the decomposition of the glucoside, gaultherin, hence is not present as such in the leaves. The oil contains about 99.0% of methyl salicylate. Synthetic methyl salicylate and the cheaper oil of sweet birch, which consists of about 99.8% methyl salicylate are common adulterants of true oil of wintergreen. Wintergreen extract is the flavoring extract prepared from oil of wintergreen, and contains not less than three per cent (3%) by volume of oil of wintergreen.

In our concluding installment we shall de-

(Continued on page 39)

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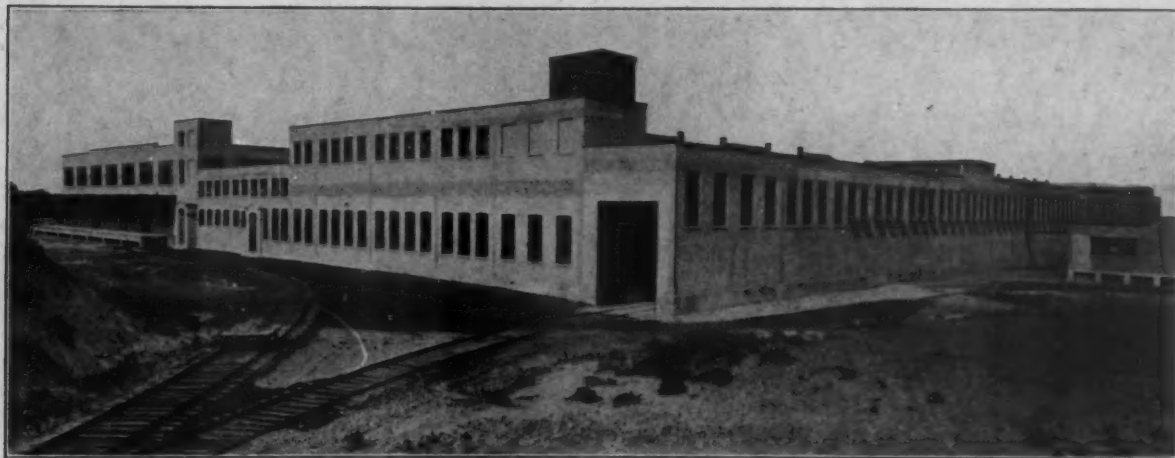
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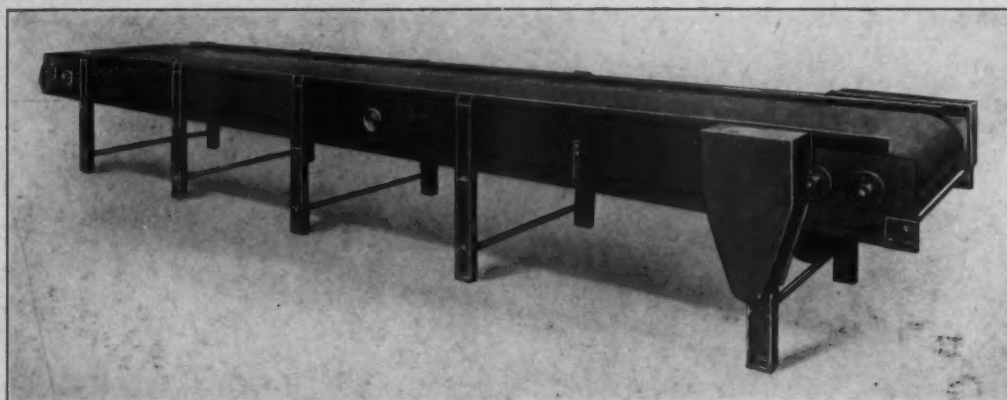
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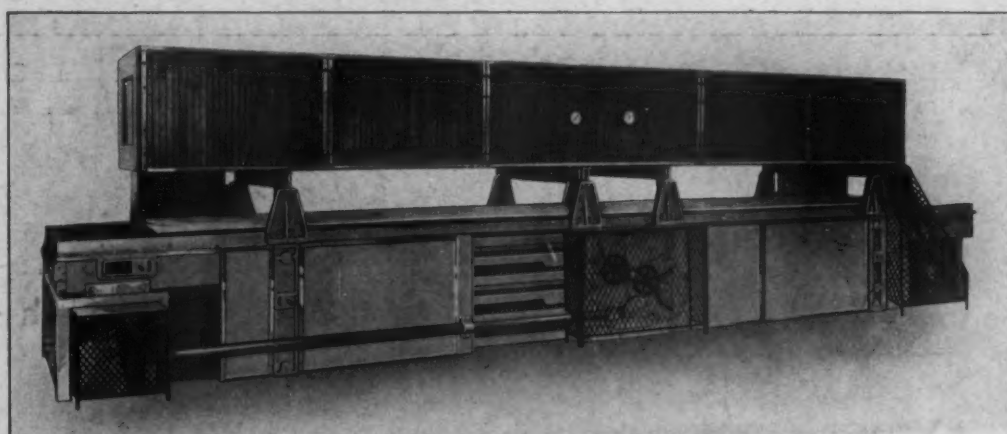
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GREER SHAKING TABLE

Will assist in raising to the center of the bar the almonds or nuts which have been placed in the mould previous to the chocolate deposit. Shakes air bubbles out and gives a level uniform bar.



THE GREER CHOCOLATE BAR AND TEN-POUND CAKE MACHINE

Guaranteed to produce from six to eight tons per day.

We have built over this machine a Bunker Room which is scientifically insulated. It is piped for either brine or ammonia refrigeration as specified at time of ordering. To operate this machine up to maximum capacity a five-ton refrigeration machine is required for its cooling. The coils and a specially designed blower for air circulation are supplied and so placed that a uniform temperature may be maintained throughout the machine, which insures the proper setting of chocolate bar work quickly.

The bars cool and in cooling contract from the metal moulds, freeing themselves, thereby eliminating any damage to moulds by hammering or unnecessary breaking of chocolate. The machine can be equipped with a conveyor passing through a warm tunnel, returning the empty moulds from the delivery end back to the Depositor for refilling. In 25 ft. by 5½ ft. you get a travel of 110 ft., and 360 square ft. of cooling space. Built either with or without Bunker Room.

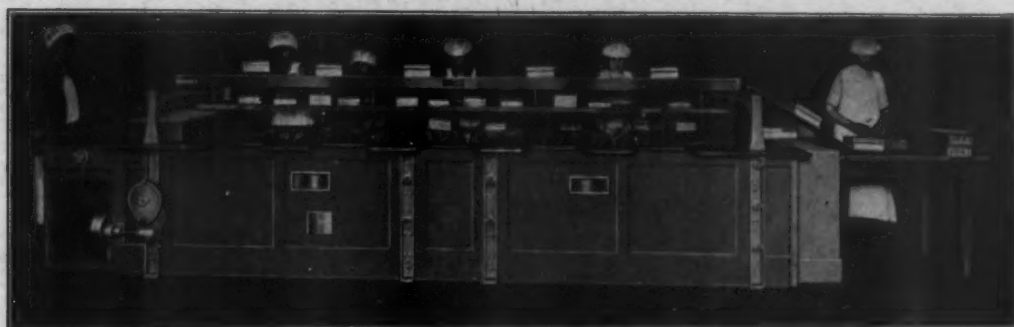
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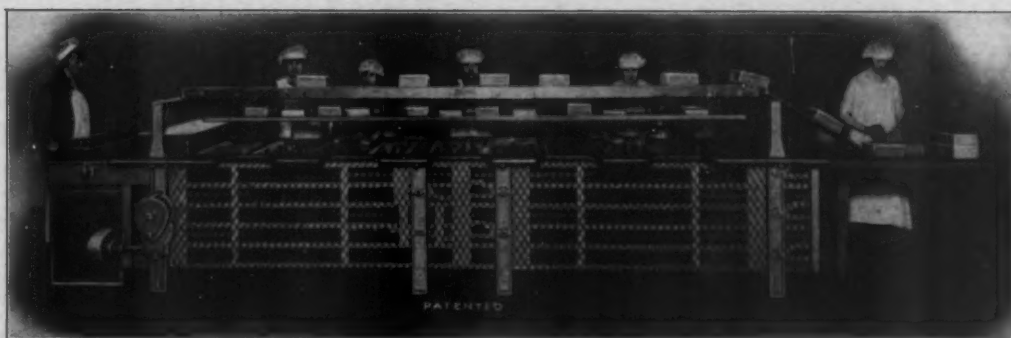
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THE GREER CHOCOLATE { DRYING CONVEYING PACKING } MACHINE



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Speed up your production by utilizing a Greer.

It places before your packers 200 plaques of perfectly dry goods each hour—a steady stream of finished goods direct from your enrobers, and it sends all the empty plaques back there.

It gives a perfect gloss to your enrober goods—brings them at last right up to hand-dipped, treating each individual piece identically as it handles all the others. The uniformity of your goods is absolute.

You catch the eye of the public with goods of the Greer.

It cuts your production costs, and will take charge of any goods your enrober can produce, and saves 99 per cent of waste.

The setting of the goods is insured by the regulated speed of the conveyor. There can be no discoloring. You can pack direct into boxes. A shelf under the conveyor takes charge of your wax paper, cardboard, boxes, etc., and the filled boxes can be discharged by the upper conveyor where you want them.

Equally good for candy, biscuits or cakes.

In 16 ft. 10 in. by 3 ft. 6 in. you get a travel of 85 ft. and 252 sq. ft. of cooling space—the 60-tray size. It is made in any size, the 53-tray giving 176 plaques per hour, and the 46-tray size 153 per hour.

All sizes mentioned take about $\frac{1}{2}$ H. P. to drive and weigh around 2,600 lbs.

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BOXES**

Food Flavors

(Continued from page 34)

scribe specific adulterations of flavoring products and include a bibliography which will be of interest to those who wish to pursue the subject in greater detail than has been accorded in this series of articles.

PART VI

(Concluding Installment)

It has been indicated in preceding chapters that food flavors should comply with the Federal Food and Drugs Act with regard to composition and branding if they are shipped in interstate commerce, exported to the United States or otherwise entered within the channels of commerce described in the Act. The provisions of the Act covering the adulteration of food flavors and other food are as follows: First: If any substance has been mixed and packed with it, so as to reduce or lower or injuriously affect its quality or strength. Second: If any substance has been substituted wholly or in part for the article. Third: If any valuable constituent of the article has been wholly or in part abstracted. Fourth: If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed. Fifth: If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health. Sixth: If it consist in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance.

Each one of these provisions has been violated one or more times and some of them have been and are being violated repeatedly, the small fines which ordinarily are imposed not always serving to deter the careless or dishonest manufacturer from continuing the adulteration of his products. It should be stated, however, that usually the adulteration of flavors is discontinued when the manufacturer's or importer's attention is called to the matter, and it is quite possible under the statute to take such drastic action against adulterated flavors and other food that it becomes unprofitable to continue their manufacture and sale. Some types of adulteration of various spices, essential oils and extracts have already been mentioned in connection with the specific descriptions of these articles in preceding chapters. Other types of adulterations are set forth in the Notices of Judgment which are published by the Department when court cases are adjudicated.

We think it will be of interest to enumerate instances of adulterations which the Bureau of Chemistry has found in the course of the routine enforcement of the Federal Food and Drugs Act. The examples of adulteration which follow do not include all of those which have been detected, being only those which are readily available in our files, but they will serve to illustrate in a general way what the pur-

chaser should guard against when he buys spices, essential oils, and extracts. The sophistication of flavors in many cases is accomplished very adroitly, and careful and exhaustive investigation is frequently necessary to detect the manner in which the flavors have been adulterated. Almond extracts have been found adulterated by the substitution of artificially colored dilute extracts of almond and of artificially colored dilute solutions of benzaldehyde. Dilute solutions of alcohol containing merely a trace of anise oil have been sold as standard anise extracts. So called birch oil consisting of synthetic methyl salicylate has been offered for sale on numerous occasions. Caraway seed has been adulterated with excess of stems, foreign seeds, fine siftings, sand, mouse excreta, insect eggs, live worms and clumps of worm's nests and with an ergot-like fungus. Cumin seed has been substituted for caraway seed. An artificially colored dilute extract of cassia has been substituted for standard cassia extract. Chamomile flowers have contained an excess of stems, dirt and worms. *Maruta cotula* (dog fennel), *anthesis cotula* (Mayweed flowers), Roman chamomile, and the entire plant of *anthesis nobilis* have been substituted for chamomile flowers. Cinchona bark deficient in alkaloids and with excessive ash has been offered for entry into the United States. Cuprea bark has been substituted for cinchona bark. An article labeled cinnamon oil was found to contain at least 30% of cinnamon leaf oil. Cloves have been offered for sale with a portion of the oil of cloves abstracted and so-called powdered cloves have been found to consist of a mixture of allspice tissue and exhausted cloves. Dilute extract of cloves is sometimes substituted for the standard extract. Coriander seed has contained excess of stems, dirt, weevil and wormy seeds and Bombay or Indian coriander seeds deficient in volatile oil have been substituted for coriander seeds. Cumin seed has been adulterated by admixture with sand and grit. Dandelion root has been found to contain live worms, foreign roots, and roots spoiled by overheating. Fennel seed has contained an excess of stems and ash, mold, bored, immature and exhausted seeds. *Foeniculum piperitum* (bitter fennel) has been substituted for fennel. Whole Japan ginger has been coated with chalk or some similar substance whereby damage and inferiority was concealed. Ginger root has been found to contain white, green and black mold, to be worm eaten, and infested with live insects. Green and spent ginger root have been substituted for standard ginger. Artificially colored dilute extracts of capsicum, as well as extracts deficient in ginger extractives have masqueraded as standard ginger extract. A substance alleged to be a mixture of horseradish and mustard was found to be turmeric and charlock (wild mustard). Washed lemon oil, and an alcoholic solution of aldehydes obtained from oil of lemon grass have been sold as lemon oil.

Lemon oil has been adulterated also with alcohol and sometimes washed lemon oil is reinforced with citral and offered as lemon oil. One sample of lemon oil contained sesame oil and another contained 90% cottonseed oil. Lemon extracts have been adulterated by substituting artificially colored dilute solutions of lemon oil, artificially colored solutions of citral obtained from lemon grass, by the substitution of terpeneless extract of lemon, and by the addition of unpermitted coal tar colors. Bombay or false mace (*Myristica malabarica*) is a rather common adulterant of genuine mace and an article labeled "Mace substitute" consisted in part of a cereal product containing starch. Mace has been adulterated also with mold, insect excreta, sweepings and refuse. Papua mace has been substituted for mace. Ground marjoram has been found to contain an excessive amount of sand and clay. Leaves of *coriaria myrtifolia*, a poisonous leaf, leaves and flowering tops of *origanum vulgare*, and a type of cistus leaf have been substituted for marjoram. Mustard has been adulterated with turmeric, mustard bran, artificial color and charlock. Rape seed, brown seeds and dirt have been substituted wholly for mustard seeds and nutmegs have been adulterated with wormy and moldy nutmegs, and with dust, shells and fragments of nutmeg shells. As in the case of many other extracts, sub-standard nutmeg extracts have been offered as nutmeg extract of standard strength. Ethyl alcohol and lemon terpenes have been substituted for orange oil, and dilute alcoholic solutions of citral have been offered as orange extract. Paprika has been found to contain an excessive amount of ash and added foreign oil and Spanish paprika has been substituted for rosen pakrika. Mineral matter, sand, clay, and pepper shells have been offered as pepper. In one case, so-called peppermint extract was found to be a sub-standard article; in another case it contained menthol with little or no peppermint oil; and in several instances contained substantial percentages of methyl alcohol (wood alcohol). A so-called rose extract was an artificially colored solution of oils and alcohol, which contained no attar of rose. An alleged rosemary flower oil was found to contain a smaller percentage of esters calculated as bornyl acetate, and a smaller percentage of total borneol, than the standard of the United States Pharmacopœia. Saffron has been adulterated with borate, excess of yellow styles and of powdered stamens of *crocus sativus* L. Greek sage (*salvia triloba*), mineral matter, sand, clay and sage stems have been used to adulterate sage. Savory leaves have been adulterated with an excess of stems. Sarsaparilla root has been adulterated with mold, stems, and soil. *Smilax utilis*, native Jamaica sarsaparilla, has been substituted for sarsaparilla. An artificial oil, produced from waste camphor oil, has been substituted for sassafras oil and thyme oil has been adulterated with tur-

pentine. Analyses of so-called turmeric show that it sometimes contains wheat and arrow root, starch, wheat flour and gypsum. Products labeled vanilla extract have been found deficient in vanilla bean extractive matter, to be artificially colored and to consist of vanillin solution or of a vanillin and coumarin solution. An artificially colored dilute solution of benzaldehyde has been substituted for wild cherry extract and synthetic methyl salicylate has been substituted for wintergreen leaf oil.

Some of the adulterations mentioned above may be corrected by revising the label so that the purchaser will be informed as to the character of the product which he buys. For example, an alcoholic solution of vanillin and coumarin colored with caramel in imitation of a standard vanilla extract may be sold in compliance with the statute if it is plainly and conspicuously labeled as an imitation vanilla extract. Other forms of adulteration, e. g., the addition of a poisonous or deleterious ingredient which may render the article injurious to health cannot be corrected by any form of labeling. An example of this type of adulteration is the presence of wood alcohol in so-called peppermint extract.

As we have stated previously, the data contained in this series of articles have been collated from various sources, including publications of the United States Department of Agriculture, articles appearing in scientific and trade journals, books by various authors dealing with the subject of flavors, and files and special reports of the Bureau of Chemistry. This broad and fascinating field has only been touched upon by us and we are appending herewith a bibliography which will be of interest to those who wish to learn more about food flavors.

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(Continued on page 47)

Profit-Sharing Plan for Salesmen

by E. Sanderson

An interesting report of an organization plan for compensation of salesmen which overcame old abuses and inspired the management viewpoint which functions in terms of profits.

A Bit of Reminiscence

THE original method of remunerating salesmen was to pay them a salary and their actual traveling expenses when they were absent from home. Their legitimate expenses included transportation and legitimate allowances for food and lodging, and history tells us that in the earlier days there were salesmen so foolishly honest that this was all the house ever paid towards their support. This method of remuneration soon grew obsolete and it then became customary to pay salesmen their salary, their transportation, food and lodging, clothing for themselves and their families, if they had any, lavish entertainment for themselves and their customers and all other expenses mentionable and unmentionable which the salesmen considered it was necessary to contract. These were usually returned monthly, in a lump sum, paid by the cashier without the approval of anybody, until the salesman's expense book was invented, when it became customary to have these expenses approved by somebody before being paid by the cashier.

Some of the proprietors or sales managers were more proficient than others in detecting items which they did not consider legitimate, but if the salesman was returning a fair amount of business, very few questions were asked, and if items were not allowed in any case they invariably appeared in another form in the next month's expense book and were then approved.

In my own early experience as a traveling salesman, I remember how difficult it was to get a winter suit and overcoat worked into two months' expenses, but by consultation with two of my friends who were more expert in this line, the items were finally worked through, principally under the head of "entertaining of customers" and "team hire" to visit customers situated three or four miles from the station. No questions were asked.

Many improvements have been made in this respect, but no one business man is able to compute the many millions of dollars which have been paid to, or spent by salesmen, in pursuits entirely foreign to the business in which they were engaged, and for expenses which were never legitimately contracted in securing orders for the house for which they traveled. Nevertheless, in at least 70 per cent of the business houses of today, this old method which sprung from nowhere, for the remuneration of

salesmen by a fixed salary and expense book, is still in force, and in many cases no account whatever is kept of the actual profits which are turned in by these salesmen from their customers, or of the business which they obtain, and in a great many cases no accurate account is kept of the amount of sales which result from their employment.

It is accepted as a necessary evil, like the income tax, which we all growl about, but eventually pay without protest, and while practically every other item of expense of doing business is carefully and systematically scrutinized and approved, every possible effort made to purchase materials at the lowest possible prices, the bookkeepers, clerks, stenographers, porters and teamsters all held down to rigid rules and absolute hours of employment, salaries carefully adjusted to the minimum point, so that the expense will not extend beyond a certain percentage of sales, still the remuneration of the salesman and the checking of his time and expenses is still continued in the haphazard way which was in force when the first salesmen went out.

The Profit-Sharing Plan a Panacea

There are some notable exceptions where a number of houses have saved at least fifty per cent of the money paid out on the total expense account. Better and more satisfactory results have also been obtained through the use of a profit-sharing plan for salesmen. While this plan may not be perfect, it is a tremendous improvement over the old-fashioned method of paying salary and traveling expenses. It is simple and easy of adoption and has been satisfactorily used by large wholesale and manufacturing concerns. An illustration of this plan, as employed by one concern, is as follows:

The idea is that the traveling expenses of a salesman traveling in the city where the home office is located would be smaller than those of a salesman traveling the suburban territory; and the expenses of a salesman traveling the suburban territory are much less than those of a salesman who covers distant territory and who is obliged to be away for long periods and spend his nights at hotels.

The salesmen are allowed a drawing account, varying from \$40 to \$75 per week. The sales and profits of each salesman are kept as accurately as possible on special order blanks written for this purpose, and in a special sales book, and it is agreed with the salesmen that

the profit-sharing settlement is to be based on figures as rendered by the bookkeepers. If clerical errors or mistakes are made, either against or in favor of a salesman, one is supposed to balance the other. There is no going behind the returns as computed, and there has not been any trouble at any time with the figures presented.

The profits are figured on the cost of goods delivered at the warehouse, regulated by current market prices, without regard to actual cost, the salesmen having no benefit of speculative contracts or gain from appreciation, and losing nothing through decline in market value. All allowances, cash discounts, or deductions of any kind are deducted from gross profits.

Each month, salesmen in the strictly city section are credited with 25 per cent of their gross profits; in the suburban section with 30 per cent of their gross profits; and all salesmen in territory beyond that get 40 per cent of the gross profit, which is the extreme limit.

Salesmen are permitted, if necessary, to draw against a credit balance on the books, but this is discouraged as far as possible, because it is better for the salesmen to secure the extra remuneration at the end of the year in one lump sum; and with very rare exceptions, salesmen have not drawn against this profit account, except as arranged at the beginning of the year, and it is seldom that the drawing account is changed from year to year, each salesman recognizing the value of a lump sum at the end of the year and the thrift which is encouraged in this way.

At the end of the year the accounts are balanced, and all uncollectable accounts charged to profit and loss and are deducted from gross profits. Each salesman must necessarily stand his share of the loss.

The salesmen are not required to keep any expense accounts whatever. They pay their own traveling expenses out of their own pockets, thus eliminating one of the most disagreeable duties of the sales manager and the cashier in approving these accounts. It is a rather interesting fact that some salesmen who traveled under the old method have reduced their traveling expenses from 40 to 50 per cent when they had to pay them themselves. With few exceptions, practically all the salesmen receive a substantial check at the end of the year, in some cases running into thousands of dollars.

Salesmen Think in Terms of Profits Rather Than Volume

Substantial sales are, of course, one of the first requisites. Very rarely are salesmen dispensed with because of inattention to business or because they do not produce satisfactory results. Salesmen have been taken from other houses, where they proved unremunerative, and after connecting with this house proved satisfactory, being well pleased with the profit-sharing system in use.

All graft, excuses and friction of every kind have been eliminated. Every man realizes that he is working for himself, that his remuneration depends entirely upon the amount of profit which he secures, that his standing in a business way depends entirely upon himself. He can in no sense find fault with the salary he is receiving, for he makes and earns it himself. He knows that every other man is working on the same system, and it is a great incentive to the younger man, the neglectful or lazy man, to bestir himself and keep up with the leaders.

In addition to the regular stipulated profit-sharing settlement, special prizes are offered to the men for each \$1,000 excess over \$10,000 gross profits. The \$7,000 and \$8,000 men are also encouraged to rise higher by giving them special prizes for every \$1,000 increase in their gross profits. Business results are always considered from the point of profits and not sales. The man who secures \$10,000 profits from \$50,000 sales is considered more valuable than the man who secures a profit of \$15,000 from \$100,000 sales.

Salesmen Have the Management Viewpoint

The fact that a salesman is lifted out of the "hired man" class, that he is practically a partner and in business for himself, that he is independent of the supervision and the petty annoyances of a hired man, makes him realize that his profits are limited only by his efforts, that his traveling expenses are of no interest to the house, that selling goods at cut prices or cost prices will not get him one cent, but will be only a waste of time.

The profit-sharing system avoids the periodical adjustment of salaries, the unpleasant cutting down of a man who has done well in the past, or the equally unpleasant holdup of a man who has had an unusually good year. Salary adjustments are usually unsatisfactory and an unsatisfied man cannot do his best work.

The plan also eliminates to a great extent, the question of poor risks and the usual losses connected with them, for it is a well known fact that all losses must eventually come out of profits, and if each salesman is conducting his business on the profit-sharing basis, he will hesitate to sell a poor risk in order to increase his sales.

The cutting of prices is also largely eliminated, for when the salesman realizes that he is interested in the profit obtained, it will be for his interest to obtain the regular market prices. It also increases the sale of profitable goods, for the salesmen invariably make special efforts to push the articles on which they receive handsome gross profits. It results in more calls and less customers neglected, decreases the receipts of the baseball magnates, and allows more fish to live in the different streams throughout the country, which would be caught by salesmen who should be hustling for business.

Exhibit Candy Industry in Public Schools

by Frank Hilton Madison

Other industries are represented in the educational system of some of the larger cities of the country in form of exhibits of the materials from which the products of each respective industry are made. These exhibits are arranged in a show case of standardized dimensions and placed in the schools where they are made the object of study.

An exhibit of the materials entering into the manufacture of candy with a brief description of their sources and an explanation of their food values would make a very interesting story to present graphically before our school children and affect a proper understanding of our industry. Surely such a movement would be constructive.—EDITOR.

"What Is Used in Good Candy"

WHY wouldn't a handsome glass-covered mahogany case with the materials for good candy in it be a valuable addition to the hundreds of traveling exhibits that are being used in the public schools of today? When you see the coming generation becoming better acquainted with cacao products, beverages, foods of all kinds, wearing apparel and almost everything else through portable exhibits of materials, you wonder if there isn't anything of interest or of value in the confectionery industry. What kinds of nuts are used in the candy business? Where do they come from? What are the harmless coloring materials? Would there be more good candy sold if the families were better acquainted with the industry?

In Chicago alone half a million children each year study the things of every-day life in this manner. Seven other cities have already taken steps to adopt the same plan, so its widespread growth seems likely.

Exhibits of Other Industries

Go into almost any school building in Chicago and you will find some class studying, from one of these glass-covered mahogany cases, the making of some product. It may be vanilla, from the plant to the package, as they sell it in the grocery and in their homes; It may be coconut with all the interesting by-products; it may be corn and its by-products of syrup, starch, oil, etc., or it may be flour, rubber, leather, coffee, spices, textiles, paints, jewelry, toilet articles, building materials or many, many other things. In fact, there are more than 800 of these traveling cases in the Chicago schools—each telling the story of something the child meets with in every-day life.

These exhibits cover more than 250 different subjects and the number is steadily growing. They are circulated by the N. W. Harris Public School Extension of the Field Museum. Each case remains in a school building for three weeks. In that time it is studied by every class in the building in connection with some regular

study. It may be used by the class in household science, drawing, composition, botany or some other thing. But the truth about a product and an industry is impressed upon every pupil from the tot just out of the kindergarten to the high school senior. Even the parents become interested. Besides the talk at home from the interested children, the people of the neighborhood see the displays in the main assembly rooms on the nights that the weekly community center gatherings are held in the school buildings.

A Confectionery Exhibit for the School

Suppose there were an exhibit representing the confectionery business so assembled that it would go into a standardized cabinet 24 inches long, 21 inches high and of a depth according to the materials installed. The cases must fit onto special display racks in the classroom and also must go compactly into the specially designed body of the motor truck that is constantly transporting exhibits from school to school.

There might be from ten to twenty or more specimens of the actual materials going into good candy. Or there might be a plastic model of some sort if necessary. Facts about the different materials would be told briefly but interestingly on large framed descriptive labels at both sides of the case. These frames would telescope into the case when it was being moved.

How Other Industries Are Represented

But not all the exhibits are similar in appearance. Some fields lend themselves to the use of dramatic ideas. For instance, the tea industry is in a theater-like setting. In eight scenes, tiny Japanese men and women dolls with miniature equipment carry forward the story of the tea business from the hillside plantation with actual plants to the loading aboard the ocean liner for shipment to America.

Similar cases are those depicting the gold-mining industry, wherein tiny miners, with picks and shovels work in completely equipped models of gold mines. The same degree of realism is noticeable in the handsome cases of

birds and animals. These creatures are mounted in life-like postures before naturally enlarged photographs of the actual scenes where the specimens were taken and with the identical branches, foliage or other accessories that were present when the field collector captured his specimen. The extension has a staff of experts that can attractively carry out any idea like these for industrial or natural history exhibits.

Not only have the extensive resources of the Field Museum been drawn upon for materials to make up these exhibits, but in more than thirty different fields leading manufacturers have co-operated. They have furnished materials for six cases, each typical of their respective industry. Where the entire exhibit—exclusive, of course, of the cabinets, workmanship, labels, etc.—is furnished by an association or individual, a placard bearing the name of the donor is included with each collection. In some cases it has been found advisable to include the branded or packaged form of the product.

This unique method of education is still in its infancy. Men in business are coming forward from time to time with offers of co-operation. Dr. S. C. Simms, curator of the extension is very receptive to suggestions from those who feel that dissemination of knowledge concerning their products or industries will be valuable to coming generations as well as to the industries themselves.

"See Ourselves As Others See Us"

There are few industries that have no interesting stories in them. The men concerned may be too familiar with the wide search for materials, the absorbing manufacturing processes or the remarkable by-products to realize the fascination they would have for the outsider. Doctor Simms has the faculty of finding these stories and translating them into graphic exhibits that not only capture the attention of the youngsters and lead them to a better understanding of the product, but they are eagerly examined by business men who chance to see them.

All this is part of the plan of the Field Museum to make that institution play a practical part in the lives of the coming generations. By its study is made more attractive and the children apply themselves more closely to their work. When they are through with school they have become impressed with the idea that nothing in life is as uninteresting as it seems at first glance. They will go out into the world to become men and women who are willing to inquire into the hidden things of life, of industry and products and, therefore, are less liable to become hopeless individuals with an indifference to industry and trade.

Before this plan was put into effect the best teachers and sociologists available investigated its possibilities. Upon their recommendations,

the late N. W. Harris, a prominent Chicago banker, established a foundation fund of \$250,000 to be used by the Field Museum for circulating portable exhibits of economic and natural history specimens through the Chicago schools.

So attractively was the idea carried out that already such cities as Cleveland, Pittsburgh, Brooklyn, Philadelphia, St. Louis, Los Angeles and Milwaukee have taken steps to adopt it for their schools.

It seems to offer interesting possibilities for almost any industry with vision. The candy industry is no exception, especially in view of the fact that its products and their food value are more or less misunderstood in the minds of the general public. For instance, some local candy manufacturer might appear before the geography class or botany class and tell, without sales talk, where candy materials were obtained and in a general way how they are put together in the modern manufacture of confectionery in commercial quantities, and thus win for the candy industry the confidence of the rising generation in a way that would have a very appreciable effect on the national candy sales sheet.

Completers

"I never," says an employer, "lack beginners in my offices or factory, but the supply of completers is never equal to the demand."

I have often wondered whatever became of the brilliant chaps I used to envy during my college days, who stood away at the top in marks and grade.

Somehow their names refuse to ring down the halls of fame as I thought, at the time, that they would. They were wonderful starters—but not very good completers in the game of life.

How interesting to watch the beginning of an athletic race, oftentimes the most brilliant looking chap appearing as the most probable winner. But as the race progresses, one by one the competitors drop out because of lack of training or brain control—or something—and just like as not the chap we didn't figure on at all, comes in—first!

Oh, there are always plenty to begin in anything that "looks good." But the completers are those who did not have in mind whether the chance looked good or not, but only had in mind the idea of finishing after having done their best.

Be a completer at your job.

A lot of times the crowd will try to get you nervous and discouraged—or perhaps mad. But do not mind at all. One thing is sure: if you complete your job or your task, every last man will applaud you, either outwardly or in his heart, and whether friend or foe. For, all the world loves a completer.—*American Insurance Journal*.

A man without a smiling face should not open a shop.—*Chinese Proverb*.

If you have a man working for you who is not fired with enthusiasm and you cannot fire him with enthusiasm, then promptly fire him with enthusiasm.—*Exchange*.

Some Questions and Answers About Molasses

The article on Molasses in the November issue of THE CANDY MANUFACTURER has given rise to the following questions from the trade to which the following answers are submitted:

1. *"How can we tell the temperatures at which the various kinds of molasses will scorch?"*

Make a cooking test, having for this purpose a small copper saucepan and a thermometer that will register accurately with bulk immersion. Take a 4 ounce sample and stir and cook it until it shows signs of scorching.

2. *"When should molasses be introduced into the batch and what amounts should be used to produce the true molasses taste and preserve the desired physical properties of the candy?"*

Molasses used as a flavor should be introduced at the finish of the cook. As to the amount, we can only answer in the words of the housewife, "flavor to taste." To preserve the physical properties of candy, reduce the corn syrup as the molasses is increased.

3. *"In buying molasses, is it not logical that we should know the water content?"*

The only advantage in determining moisture content would be to show the loss of weight in cooking. Per cent of moisture does not indicate quality. Grade "A" Molasses has more water than Grade "D."

4. *"How is the purchasing agent to tell the difference between the different grades of molasses which are offered on the market; the best grade of black strap, and that which contains a lot of glucose?"*

It would be difficult to determine the difference between some grades of molasses and almost impossible to give a standard for judging them. No reputable mixer of molasses would offer a product containing glucose without stating plainly that glucose was present.

5. *"Where does the best molasses come from?"*

This question is answered in the November article.

6. *"At what time of the year can molasses be bought to best advantage?"*

The new crop appears in November and December, but there is little advantage in purchasing at that time, as the average factory is not prepared to properly store molasses. It is best

to purchase molasses from concerns who are prepared to furnish uniform molasses throughout the year and who specialize in grades for confectioners.

7. *"What is the sugar, or sucrose and invert sugar content of molasses?"*

Four standard grades, analyzed as follows:

Grade "A"	Grade "C"
Sucrose48.02	Sucrose37.54
Invert Sugar ...18.5	Invert Sugar ...22.35
Total Sugar ..66.52	Total Sugar ..59.89
Total Solids72.6	Total Solids75.52
Ash 1.67	Ash 6.99
Grade "B"	Grade "D"
Sucrose43.58	Sucrose35.54
Invert Sugar ...22.35	Invert Sugar ...23.17
Total Sugar ..65.93	Total Sugar ..58.71
Total Solids75.37	Total Solids78.0
Ash 5.53	Ash 7.34

8. *"How does age affect molasses?"*

Grade "A" improves with age, but the sugar may separate. Grade "B," "C" and "D" deteriorate in color and flavor. For this reason they should be purchased from the manufacturer or blender, as required.

9. *"When two pounds of molasses is added to a fifty pound batch of hard candy, what is the proper way to handle it in order to secure the maximum molasses flavor?"*

Add at the finish of the cook.

10. *"What is the percentage of acid in molasses of the different grades and to what degree will it invert?"*

The amount of acid in different grades of molasses varies widely. It is somewhat higher in the lower grades, but it depends still more than on the grade of molasses on the method of manufacturer in use in the country of its origin. Molasses must always be considered as a fairly strong doctor and the varying amounts of acid can be disregarded.

Food Flavors

(Continued from page 41)

72. Spices. By Henry N. Ridley; Spice Mill Publishing Co., 97 Water St., New York City.
73. Spices and How to Know Them. By W. M. Gibbs Matthews—Northrup Works, Buffalo, N. Y.
74. Standard Manual of Soda and Other Beverages. By A. Emil Hiss.
75. Techno-Chemical Recipe Book. By Bramt-Wahl; Henry Carey Baird & Co., New York City.
76. Treatise on Beverages. By Sulz. Out of print.
77. Volatile Oils. By Gildemeister and Hoffman; Longmans, Green & Co., London. In three volumes.
78. U. S. Dispensatory, 20th Edit. By Remington and Wood; published by J. B. Lippincott Co., Philadelphia and London.
79. U. S. Pharmacopoeia, Ninth Decennial Revision. P. Blakiston's Son & Co., Philadelphia, Pa.

The non-departmental publications listed above are not endorsed, guaranteed or even recommended over others which may contain equally valuable information, but which are not mentioned, and no discrimination is intended against other publications covering the same subjects. It should be borne in mind also that the formulas which are contained in many of the publications mentioned have not been tested by us, and it may be that if the directions in these formulas are followed in detail, products will be produced which will not comply with the requirements of the Federal Food and Drugs Act.

It Pays

BY PAUL YOUNT

How big's your business, Mr. Man?
A speck in Life's great fryin' pan!
And yet We All are prone to think
There's not a solitary gink
In all this grand and glorious land
Who doesn't know Our Make and Brand—
Who doesn't think that what We do
Is just the thing! Beyond taboo.

And so, because we are so wise,
We hate like sin to advertise,
We hate to spend our hard-earned dough
To tell the people "What They Know."

But if we'll stop and take our stock,
We're apt to get an awful shock
To find How Small's the Measley Bunch
Who even have the slightest hunch
Of What We Do and What We Make,
Now isn't that enough to take
Away Conceit and in its place
Make You Look Facts Straight in the Face?

If You'll do this, then I'll surmise
You'll go ahead and Advertise
With All Your Might and in a way
That's Bound to Make the Dern Stuff Pay!

The Can-D-Ola Company, of Philadelphia, is planning to locate a plant in Dover, Del. They will manufacture soft candy in this plant.

Dickson All Steel Candy Coolers or Slabs

have been on the market since 1910. They are used by prominent candy manufacturers throughout the entire country. All coolers are furnished with 2-inch pipe legs.

The following sizes are available for shipment:

No.	Size	Shipping Weight
1	36 x 60	700 lbs.
2	36 x 96	1,100 lbs.
3	36 x 120	1,500 lbs.
4	48 x 72	1,100 lbs.
5	48 x 96	1,600 lbs.

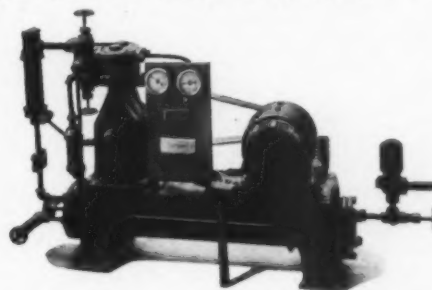
Write for prices.

All coolers manufactured under the Dickson patents are designed to insure proper water circulation resulting in RAPID, UNIFORM COOLING without the formation of vapor or steam pockets tending to produce hot spots.

The circulating water enters through a pipe connection centrally located in the bottom of the cooler, overflowing through an inlet dam, filling up the cooler with water and passing out through four outlet dams located one in each corner. These outlet dams are interconnected by a system of overflow pipes located within the cooler jacket. The circulating water is thus kept in intimate contact with the under surface of the top cooler plate.

Refrigerating Machinery

The ISEBOY illustrated below is a modern refrigerating machine, completely self-contained, ready for immediate connection and operation, up to date in every respect.



It is designed to use either ammonia or methyl chloride.

Methyl chloride is a low pressure refrigerant entirely harmless and inoffensive, especially suitable for locations where ammonia might be considered undesirable.

If you are considering the installation of cold storage equipment or air cooling of chocolate dipping rooms, let me have your complete requirements and I will make you a quotation on the equipment that will surprise you.

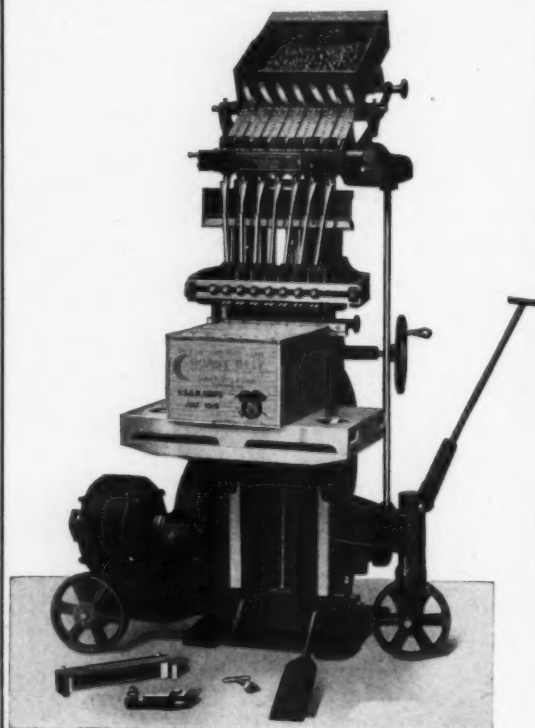
E. A. BURROWS

Refrigerating Engineer

Security Building

CHICAGO

A Gang of Seven HAMMERS IN ONE Saves You Money IN NAILING BOXES



No. 7 Morgan Nailer, Motor Drive, Mounted Portable

Will drive from one to seven nails at each stroke.

Mounted portable, can be readily moved about the factory.

Machine Nailing
Makes Better Boxes

Write Today For Information

Morgan Machine Co.
Rochester, N. Y.

Some Causes and Prevention of Off-Color in Confectionery

(Continued from page 25)

should also be exercised in adding colors to hot solutions, for some are acidic and some basic in character, each of which will effect the resulting color very materially. It is always better to add the colors to the cooled and practically finished solution.

Summary in Avoiding "Off-Color"

There are many other sources of coloring in white syrups, but if one wishes to keep down all sources to the minimum he must remember that a clear and brilliant product can be made only by very careful attention to the temperature of the solution and to cool his syrup as soon as it is finished; that acids or acid salts should never be used in the boiling hot solution if invert sugar is to be kept down and color from this source minimized; that basic salts and bases, such as lime, carbonate of soda and bicarbonate of soda must be left out if the appearance is to be kept white, or to use them only in a very dilute form and in a solution where the character is and remains acid; that one must know the flavorings used and the special mixtures bought for this purpose; that a pure and uncontaminated water supply is absolutely essential and that filtered water should be used wherever possible; and last, but not least, that off-colored syrups cannot be substituted for pure sugar syrups in any product, whether colored or white, and a comparable result obtained unless the color in the syrup is the same as that in the finished product.

When you get a little gloomy about business just recall how one of the directors of a big business turned the tide of thought by asking another director this question: "Can you tell me how far a dog can run into the woods?"

The younger director appeared disgusted with such a question and he answered: "He can run into the woods as far as he likes."

"No," said the older director, "when he has run into the woods half way, he is then running out of the woods." And this is exactly what we business men are doing today—we are on the last lap of a long and lonely trail out of the woods, and if this is not encouraging enough, bring on a better illustration.—*VanAmburgh, in "The Silent Partner."*

The person who feels an instinctive dislike to tackling the day's work as he starts to business should find out what's wrong. If he forces himself to go through the paces he will hold down a job, perhaps, but will he make a success of it? The chances are all against it. The really efficient worker is the one whose mind and body are attuned to his tasks, who doesn't let his work get ahead of him, or "on his nerves," and who does it happily, interestedly, and enthusiastically. He never makes the mistake of thinking that smiles were made for leisure hours only, but carries them to business with him. Watch out for him. He's the man to get ahead.—*Telephone Review.*

Use of the Laboratory in Selecting Raw Materials

(Continued from page 29)

to inform the writer that no harm could come of using a handful of lead buckshot as a sedative for fermenting molasses, since if you were to examine the barrels afterward, you would find that the lead had entirely disappeared! In his ignorance he was unaware of the fact that the lead salts which were formed in the process were deadly poisons.

The matter of color in food material is of equal importance and in this case it is North Dakota which has adopted the extreme attitude of forbidding the use of anilines entirely. The U. S. Department of Agriculture now certifies eleven aniline colors for use in the manufacture of food. The objection to the remaining coal tar colors is that they are apt to contain poisons which it has so far been impossible to completely avoid or to remove.

Many of these colors are permitted abroad and it is on this account that the government so carefully supervises the importation of such products as glace fruits, which may contain them.

The laboratory's interest in colors does not end here. Many of the permitted shades, both aniline and vegetable, fade far too rapidly to be suitable for use in candy. How would you like to buy a lot of bright red cherries and find after holding them in storage for a couple of months that the color had disintegrated and left the cherries absolutely white? This, nevertheless, has been the experience of more than one purchaser, and except where the nature of the coloring matter can be determined immediately by chemical analysis, it is impossible to detect it until the change actually takes place.

An interesting sidelight on the subject of color is the tendency of certain kinds of material to discolor the batch. Certain vanillas have been found to discolor fondants until a neutralizing agent is employed to counteract it.

Presence of Harmful Ingredients

Apart from the harmful effects which may result from the indiscriminate manipulation of colors and preservatives, there is the fact that poisonous or deleterious substances may occur naturally in the raw material or may be acquired during subsequent processes of handling or manufacturing. Arsenic is present in minute quantities in gelatine and baking powder. Mineral salts occur in a great many foods. In the artificial drying of fruits, for instance, galvanized wire racks are used. The resulting appearance of zinc in the product has been held to be objectionable by many, frequently interfering with the sale of American dried fruits in foreign countries whose regulations affecting heavy metals are stricter than ours. Similarly, mineral salts may be introduced into candy by contact with mineral oil, in consequence of which the government's permission to use min-

We have added several new pieces to our line of

PETER'S Superlative Milk Chocolate Coatings

These new milks make possible a little wider selection in color, grade and price. Like all of our coatings, they are genuinely fine chocolate.

The consumption by the public of candy made with FINE MILK coatings is rapidly increasing. We are the natural source of supply for milk chocolate. Daniel Peter invented it and the Peter factories have been distinctly pre-eminent in this particular field for over fifty years.

Samples and prices submitted upon request.

Peter Cailler Kohler Swiss Chocolates Co.

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Factories:

Fulton, New York, U. S. A.
Hayes, England. Broc, Switzerland.
London, England. Hochdorf, Switzerland.
Orbe, Switzerland. Pontarlier, France.



A Chocolate Factory
devoted to the
exclusive manufacture of
High Grade Chocolate
Coatings and Liquors

*Samples and Prices
sent on request*

FORTUNE PRODUCTS CO.
416-22 South Desplaines Street
CHICAGO

eral oil as slab dressing is purely tentative and conditional.

Bacterial Contamination

Of the host of enemies which threaten the wholesomeness of our raw materials, none is more insidious nor more devastating than the microbe. Thus we find bacterial contamination the final factor which the laboratory must determine in connection with the examination of incoming raw material.

The laboratory of one of the largest and best known confectioners in the East complained recently that the bacterial count of the milk and cream with which they were being supplied was running greatly in excess of the local health board standards, and that furthermore, they contained the objectionable bacilli lactis aerogenes and coli. These organisms, harmless in themselves from a health standpoint, are so intimately associated with the sources of typhoid that they have come to be regarded as danger signals whenever they appear. Word went forth to the supplier to get after his dairy and have it cleaned up. A liberal time limit was fixed upon his compliance.

When the condition began to get worse instead of better, however, the laboratory notified the Department of Health, who appeared to be duly appreciative of the courtesy. So, oftentimes your own laboratory can lead the way to greater purity and wholesomeness, even in instances where the defects have escaped the vigilant eyes of the health authorities. Many other discoveries of practical importance are based upon the laboratory's services at this juncture. They are such things as the presence of liquifying bacteria in gelatines and gelatine products; fermentative bacteria in fruits, etc.

How the System Works in Practice

Fortunately for the manufacturer, not all incoming raw material needs to be checked up in all of the foregoing particulars, although the determination of each factor is essential to some one group. Yet here is where the majority of the "break-downs" occur.

The factory commandeers the stock, uses a portion of it, and from that moment your redress from the supplier becomes more or less a matter of courtesy. If you value a uniform standard of quality and would have a clean and wholesome product, under no circumstances should any portion of the material pass out of the laboratory's supervision until after it has been examined, tested and passed. The actual time consumed in passing upon the items as they appear on the receiving floor is usually a matter of only a few hours, often minutes, and while in practice the consideration of some of these factors must be reserved until after the goods have been passed, it is here that mistakes in judgment must be avoided.

From the standpoint of the buyer, who has been at some pains to select or specify the

quality of material which he desires, this part of the laboratory's work is indispensable. It constitutes the final application of the standards involved in his specifications and makes the quality and uniformity of the candy just that much more certain.

(To be continued)

Prosperity and the Ten Commandments

Business prosperity depends upon the righteousness of the man who does business, whether as merchant or manufacturer, or banker, or employee. So declares no less an authority than Roger W. Babson, head of the Babson Statistical Organization. In a recent address in New York Mr. Babson told how,

"It is not railroads, steamships, or factories which cause our prosperity; it is not bank clearings, foreign trade, or commodity prices which give us good business. All these things are mere thermometers that register the temperature of the room. Prosperity is based on those fundamental qualities of faith, temperance, service, and thrift, which are the products of religion. The fundamentals of prosperity are the Ten Commandments."

And therefore, he continues—

"The future of American business depends on the developing of the soul of the man and upon again permeating labor, capital, and management with integrity, loyalty, and a desire to serve. The need of the hour is not more salesmen, or more foremen, or more technical men, but the need of the hour is to get employers and wage-workers to give their hearts to God. Business depressions can be avoided, but only by re-directing the minds of your people to the need of integrity, industry and thrift. Business conditions can be changed for the better only as man's attitude toward life changes."—*The Literary Digest*.
—S. C. R.

The Only Way Out Is Through

The only way out of a job Bill knew was through!
He never once thought of going around
Or tunneling under it, into the ground,
Or turning back—none of these would do.
"The only way out of a job is through";
Said Bill; and well, he proved that he knew.
Whatever they put on Bill, he'd do.
Bill learned a lot that none other knew, going through.

Jobs hunted Bill up and got in his way
Till it even affected the poor boy's pay!
And the others said: "Just watch that duck—
Some stupid fellows have all the luck!"
But luck had never a thing to do
With Bill's success, for the head guys knew
Bill's only way out of a stint was through.

Now they call him "Boss," those others do;
And you, if you for your motto will take old Bill's
And use your several brains and wills
And look less oft at the office clock,
Will soon have boosted your personal stock
Till the "luck" of Bill may be your "luck," too.
Remember his name because he knew
"The best way out of a task is through."

—Strickland Gillilan.



THE FOUNDATION MUST BE RIGHT



THE EFFORTS of a lifetime spent in perfecting a product may be lost in a few weeks by an indiscreet "saving" on raw material.

¶ One bad batch, widely distributed, may mean a setback of years, and even a slight lack of uniformity will militate against the success of any product.

¶ The raw materials are the foundation stones, and they must be right—otherwise uniformity is impossible.

¶ VANILLIN is the very corner-stone of your Extract or Confection. You, therefore, cannot afford to be indifferent about the quality of this important flavor.

¶ VANILLIN-Monsanto is right—always right—for the purity standard (higher than that required by the United States Pharmacopoeia) adopted by us years ago, is rigidly maintained.

¶ Build with pure white VANILLIN-Monsanto and your product will stand on a firm foundation.



Monsanto Chemical Works
St. Louis, U.S.A.

Manufacturers of

VANILLIN-Monsanto (the pure white Vanillin)
and
COUMARIN-Monsanto (the original American Coumarin)

Stocks are carried in St. Louis, New York, Chicago,
Minneapolis and San Francisco

The Thinker

BY BERTON BRALEY

Back of the beating hammer
By which the steel is wrought,
Back of the workshop's clamor
The seeker may find the Thought,
The Thought that is ever master
Or iron and steam and steel,
That rises above disaster
And tramples it under heel!

The drudge may fret and tinker
Or labor with dusty blows,
But back of him stands the Thinker,
The clear-eyed man who knows;
For into each plow or saber,
Each piece and part and whole,
Must go the Brains of Labor,
Which gives the work a soul!

Might of the roaring boiler,
Force of the engine's thrust,
Strength of the sweating toiler,
Greatly in these we trust.
But back of them stands the Schemer,
The Thinker who drives things through,
Back of the Job—the Dreamer
Who's making the dream come true!
—From "Songs of the Workaday World."

A smooth sea never made a skillful mariner, neither do uninterrupted prosperity and success qualify for usefulness and happiness. The storms of adversity, like those of the ocean, rouse the faculties, and excite the invention, prudence, skill, and fortitude of the voyager. The martyrs of ancient times, in bracing their minds to outward calamities, acquired a loftiness of purpose and a moral heroism worth a lifetime of softness and security.—Anon.

A man is either a thinker or a thing—he may take his choice. He is either one of the Efficient Few who create and operate civilization, or he is one of the Automatic Many, who believe instead of think, and follow at all times the line of least resistance.—Herbert N. Casson, in "Making Money Happily."

To be honest, to be kind—to earn a little and spend a little less; to make, upon the whole, a family happier for his presence; to renounce, when that shall be necessary, and not be embittered; to keep a few friends, but these without capitulation—above all, on the same grim conditions—to keep friends with himself—here is a task for all that a man has of fortitude and delicacy!—Stevenson.

I've paid close heed to the ways of men,
I've observed what the world calls luck,
I have silently marveled, now and then,
At the potent power of pluck;
And this as a bit of truth I hail,
A sentence that's worth one's heed:
The man who is always afraid he'll fail
Doesn't stand much show to succeed!

—Roy Greene.



Which One Is Yours?

Take two marshmallows. Tear each one apart. One is dead, lifeless. The other shows a silvery sheen. It is resilient. It is tempting and appetizing. This second one is made with Essex Edible Gelatine.

Essex Edible Gelatine is made from stock that is sweet and fresh and free from everything of an objectionable nature. Every possible care is used in manufacture to make the finished product tasteless and odorless; and to keep it pure and uniform.



Essex Gelatine Company

Manufacturers

40 North Market Street
BOSTON, MASS.

Boston
Chicago

New York
St. Louis

Philadelphia
San Francisco

The Recipe

BY BERTON BRALEY

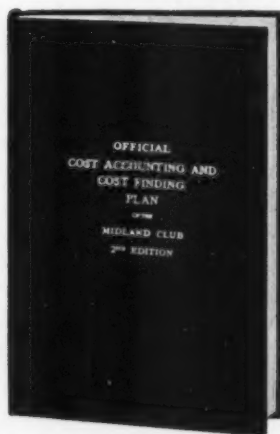
It's doing your job the best you can
And being just to your fellow man;
It's making money—but holding friends,
And staying true to your aims and ends;
It's figuring how and learning why,
And looking forward and thinking high,
And dreaming a little and doing much;
It's keeping always in closest touch
With what is finest in word and deed;
It's being thorough, yet making speed;
It's daring blithely the field of chance
While making labor a brave romance;
It's going onward despite defeat
And fighting staunchly, but keeping sweet;
It's being clean and it's playing fair;
It's laughing lightly at Dame Despair;
It's looking up at the stars above,
And drinking deeply of life and love;
It's struggling on with the will to win,
But taking loss with a cheerful grin;
It's sharing sorrow and work and mirth,
And making better this good old earth;
It's serving, striving through strain and stress,
It's doing your Noblest—that's Success!

Teamwork

The man who is really valuable in an organization, whether he is a subordinate or an executive, is the one who realizes that he is part of an organization and that his own success must be built upon the success of the men around him. He must pull with and for the other fellow.—H. S. Firestone.

OFFICIAL Cost Accounting and Cost Finding Plan

Adopted by
The Midland Club



\$3.00
the copy

For Sale by
The Candy Manufacturer
30 North La Salle St., Chicago

Christmas Is a Holiday

Won't you enjoy it more if you are satisfied that you have arranged for better packages next year?

Our wrapping machines make better packages and we will prove it to you if you will send us a sample of your bar or package.

It will cost you nothing. It may save you money.



American Machine & Foundry Co.
5520 Second Avenue
BROOKLYN, N. Y.



THE SHIPPING DEPARTMENT

The Truth About Tracers

by Harry Botsford

IN these days when a general knowledge of business detail is the rule, rather than the exception, it is surprising to note that a large percentage of shippers and receivers of freight have an entirely wrong conception of the real significance of a tracer on freight shipments. Every large organization in the country is daily in receipt of letters and telegrams from every part of the country asking that a tracer be sent on certain shipments made. Nearly all of these requests are made with the idea that such tracers will expedite the handling of the shipment and thus insure an early and prompt delivery at destination.

Nearly every shipper of goods is flooded with requests of this nature, and nearly every shipper is glad to comply with the request and so instructs its traffic department, which in turn makes a request for a tracer from the local agent of the railroad handling the shipment.

While such a tracer is sent as a matter of courtesy, the shipper very often knows full well that not once in a hundred times will that tracer do any real good in effecting the celerity of the movement of the freight in question. Strange as it may seem, if this were not so, the tracer would be performing a function for which it was never intended.

As a matter of cold and undeniable fact the system of tracing shipments, as instituted by the railroads, was for the sole purpose of locating ship-

ments lost in transit. A great many people, however, labor under the delusion that when a tracer is sent after a shipment that seems to have been delayed in transit that some mysterious force is set in motion which will cause that shipment to receive preferential handling over all other shipments. Naturally these people are disappointed when the shipment fails to arrive on a passenger train schedule. Here is what actually happens when an organization puts through a tracer for a customer: the local freight agent is given the proper reference to the shipments which is to be traced so he can readily locate his forwarding reference. The local agent then consults his records and will find perhaps that the shipment was included in a car to be transferred at Cleveland. He will then fill out a form and send it on to the agent at Cleveland and give him the data on the shipment—date of shipment, number of car, etc., etc. The Cleveland freight agent will then make his investigation of the case—if he has the time!—and may find that the freight in question was transferred to a car going to Pittsburgh. The Cleveland agent then forwards the papers to Pittsburgh and sends some data on his research back to the agent at the point of shipment. The agent notifies the shipper—and there you are: This process goes on and on until the shipment is located, but all through the process there is no effort made to expedite the speed of the shipment. In other words the tracer

had failed distinctly to give the shipment any preference whatever.

Railroad offices are usually short-handed; that is, they do not, as a rule, have a force sufficient to take care of all the demands made of them; this being the case, a great many—yes, even a majority—of the tracers are simply pigeon-holed until there is a lull in the pressure of other routine business. By the time this period has been reached the tracer is so old the agent is ashamed to continue the tracing. Again, perhaps the shipment has been delivered. Very often tracers are asked for on shipments that have not been in transit long enough to reach their destination and in cases like this, the agent simply forgets the shipper's request that a tracer be issued.

There is the case for and against the tracer. If you are a shipper or a receiver of freight, bear the facts of the case in mind. Do not put too much faith in the ability of the tracer to get you a prompt delivery on your freight. There may be any one of a number of reasons why it is being held up, but no matter what they may be, it is very doubtful if a tracer will help the situation any.

The real purpose of the tracer is to locate lost shipments and for this purpose you can use it to advantage; but as a means of giving your shipment preferential handling over similar freight it has about the same value as two tens taken away from twenty.

And thus passeth another fable!



What Constitutes Success

It isn't hard work, or honesty, or bravery.

Men have had all these things, and have failed.

It is the determination for constant growth. Because no matter how low you are when you start, if you constantly grow, you will be successful before the fight is over.

You are given certain abilities. To these you add the result of training and experience. And as both these last are constantly being added to all through life, if you take advantage of them, each year you will do better than the year before.

This is growth.

The most deadening influence in business is early and comparatively easy success. A man starts in, makes money, decides he is a success, and stops.

From then on until he dies, he makes about the same amount each year, if he is lucky. He is in a rut. And he is really losing, because each year he has more ability, but no more success. His capital increases, but he does nothing with it. Half of his tools lie idle. Such a career is not a success.

Each year of life should show a mental, a moral, and a financial profit, constantly growing. Audit the books of your life. Are you in the same condition as five years ago? There is something wrong. Your neighbor around the corner is progressing, and you are standing still. You know what the result will be. This is a competitive life.

The Boomerang

A mother was reproving her little 6-year-old girl for being naughty.

"If you are so tiresome and disagreeable," she said, "you will not be loved, and when you grow up your friends will be few."

The child replied at once:

"I shall not want friends, for I shall get married."

"Oh, no," replied mother, "you will not get married if you are disagreeable, for gentlemen are very particular."

After a short pause, the little girl remarked:

"Well, mummy, I don't think dady was so very particular."

Knockers do not kill men—they kill business. They are the persons who sift sand into the gear boxes of progress.

Hankins—"I had no idea you were going to marry that little widow."

Jankins—"No more did I. The idea was hers."—*Wayside Tales.*

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Paul Zipperer. Third Edition, rearranged, thoroughly revised, and largely rewritten. Edited by Phil.

Herm. Schaeffer. 132 illustrations, 21 tables, 3 plates. 7 x 10, leather. 345 pp. New York, 1915. \$7.50

Contents: The Cocoa Tree; The Manufacture of Cacao Preparations; Ingredients Used in the Manufacture of Chocolate; Examination and Analysis of Cacao Preparations; Installation of a Chocolate and Cacao Powder Factory.

COCOA AND CHOCOLATE. Their chemistry and manufacture. *R. Whymper.* 19 illustrations, 3 plates. 7 1/4 x 10 1/4, cloth. 330 pp. Philadelphia, 1921. \$10.00

Contents: History, Botany and Agriculture of Cacao; Manufacture of Chocolates and Cacao Powders; Chemistry of Cacao; Survey of the Components of Cacao and Chocolate; Methods of Analysis.

FOOD ANALYSIS. *A. G. Woodman.* Typical Methods and the Interpretation of Results. 108 illustrations. 5 3/4 x 8 1/4, cloth. 520 pp. New York, 1915. \$3.50

Contents: General Methods; Microscopical Examination of Foods; Food Colors and Preservatives; Milk and Cream; Edible Fats and Oils; Carbohydrate Foods; Cocoa and Chocolate; Spices, Cider Vinegar; Flavoring Extracts; Alcoholic Foods.

HANDBOOK OF SUGAR ANALYSIS. *C. A. Browne.* A practical and descriptive treatise for use in research, technical and control laboratories. 200 illustrations, 25 tables. 6 3/4 x 9 1/2, cloth. 980 pp. New York, 1912. Net, \$6.00

MANUAL FOR THE ESSENCE INDUSTRY. *Erich Walter.* Illustrated. 6 1/4 x 9 1/4, cloth. 431 pp. New York, 1916. Net, \$4.00

Contents: The Taste, and the Transfer of Flavor to Foods and Beverages; The Raw Materials Yielding the Different

Tastes; Laboratory Practice; Non-Alcoholic Beverages; The Manufacture of Liquors, Liqueurs, Spirits and Other Alcoholic Beverages; Confectionery, Bakery and Culinary Essences; Coloring Matters for Foods and Drinks; Cosmetic Essences.

COMMON-SENSE CANDY TEACHER. *Jacob Friedman.* With a supplement by Wm. H. Kennedy. *Second Edition.* 6 x 8 3/4, cloth. 391 pp. Chicago, 1911. Net, \$10.00

Contents: Common-Sense Talks; Talks on Material; Formulas; Cream Work; Gum Work; Ice Cream, Ices, Sherberts, etc.; Sensible Suggestions.

THE MANUFACTURE OF PRESERVED FOODS AND SWEETMEATS. *A. Hausner.* Translated from the German of the third enlarged edition. *Second Edition.* 28 illustrations. 5 1/4 x 7 1/2, cloth. 246 pp. London, 1912. \$3.50

A handbook of all the processes for the preservation of flesh, fruit and vegetables, and for the preparation of dried fruit, dried vegetables, marmalades, fruit-syrups and fermented beverages, and of all kinds of candies, candied fruits, sweetmeats, rocks, drops, dragees, pralines, etc.

FOOD INSPECTION AND ANALYSIS. *Albert E. Leach.* For the use of public analysts, health officers, sanitary chemists, and food economists. *Fourth Edition,* revised and enlarged by Andrew L. Winton. 278 illustrations. 6 1/2 x 10, cloth. 1109 pp. New York, 1920. \$8.50

PURE FOODS. THEIR ADULTERATION, NUTRITIVE VALUE, AND COST. *John C. Olsen.* 30 illustrations. 5 x 7 1/2, cloth. 215 pp. New York, 1911. Net, \$1.00

Contents: What is Food?; Pure Food; Standard Rations and the Cost of Food; Milk Bacteria in Milk; Fats and Oils; Butter and its Substitutes; Meats; Carbohydrates; Candies; Food Colors; Preservation of Foods; Fruits, Jams, Jellies; French and Canned Vegetables; Breads, Cereals; Spices, Flavoring Extracts.

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Imported Nut Situation

The shelled nut market has absorbed the additional duties imposed by the new tariff act, and inasmuch as the trade here has been working along a policy of day-to-day needs, the foreign market has not made heavy shipments. The light demand has tended to lower the prices, and some shippers of walnuts, having cracked and disposed of their holdings, have temporarily retired from the export market, claiming that the present prices and short demand make it prohibitive to operate. Such action in itself, if followed by some of the other large shippers would tend to cause an upward turn. In fact, recent cables would indicate that there are signs of a reactive tendency now manifest.

Arlequin walnuts, which are yellow walnut meats slightly oxidized by weather conditions while the fruit was forming, are much in evidence this season. They are in every way as good as the Extra Bordeaux or Chaberte or Mayette Walnut, except in color. This makes them cheaper, and where walnuts are desired with respect to color, the Arlequin will not do. Extra Bordeaux Halves should not be dosed with an admixture of Arlequins, and buyers will do well to see that they are not deceived. Extra Bordeaux Broken Walnuts should also be free from Arlequin pieces.

Extreme weather conditions obtaining in France during the growing season, have been rather unfavorable to the appearance of walnut meats this season. They are not as bright and handsome as they normally should be. Buyers will no doubt note this, but nature is to blame for this condition and not the importer; particularly the old line importers who at all seasons strive to secure the best quality of meats obtainable.

It might also be noted here that there is no royal profit in the handling of shelled nuts in general. The business is worked in the slenderest margin with many hazards and disappointments to contend with. Candy manufacturers who have imported nuts themselves are in position to know that the importers sell at a very close margin of profit.

Generally speaking, the market has worked down to a point where it is reasonable to look for a gradual upward move. This applies to the whole list, including almonds and filberts. There are not many stocks of shelled nuts in this market, and should large buying suddenly set in, the spot stocks, both in New York and Chicago, would soon be absorbed.

A Minus Quantity

Kind Friend—"I did what I could, Tony—I told her you had more money than sense."

The Victim—"And what did she say?"

Kind Friend—"She asked if you had any money."—*The Bystander*.

Something Wrong

"You heard me say my prayers last night, didn't you, nurse?"

"Yes, dear!"

"And you heard me ask God to make me a good girl?"

"Yes!"

"Well, he ain't done it."—*The Snark's (Star Wood's) Annual*.

Dorothy—"Papa, we didn't have any organist at Sunday school today."

Papa—"Did you have any music, then?"

Dorothy—"O, yes, we just had to sing the pieces 'dry.'"

Professor (giving examination)—"Does any question embarrass you?"

Bright Student—"Not at all, sir, not at all. The questions are quite clear. It is the answers that bother me."

Looking Ahead

Outraged Proprietor—"What do you mean by comin' into my place and orderin' a dozen oysters with only threepence in your pocket?"

Cheerful Optimist—"Well, gov'nor, you see, there is always a chance of findin' a pearl in one of them—perhaps two."—*The Winning Post Winter Annual*.

Missing

Habitue (introducing his wife to favorite hotel)—"Here, waiter, where's my honey?"

Waiter—"I'm sorry, sir, but she doesn't work here now."—*Punch*.

The senator was back home, looking after his political fences, and was asking the minister about some of his old acquaintances. "How's old Mr. Jones?" he inquired. "Will I be likely to see him today?" "You'll never see Mr. Jones again," said the minister. "Mr. Jones has gone to heaven."—*Washington Star*.

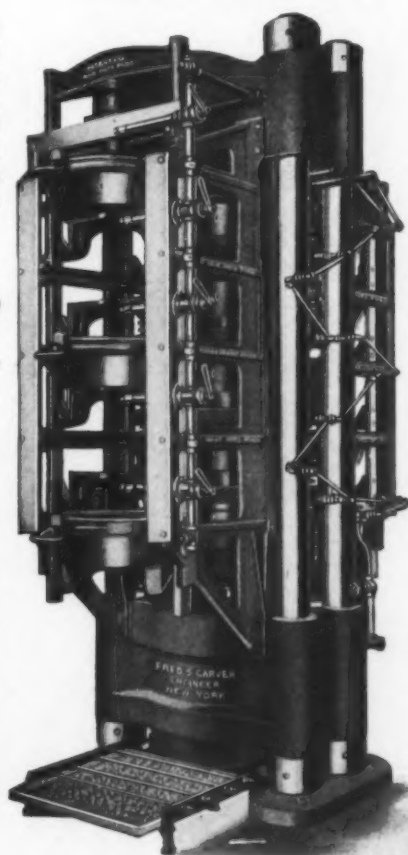
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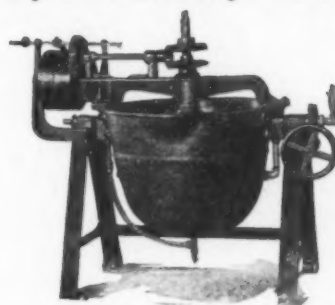
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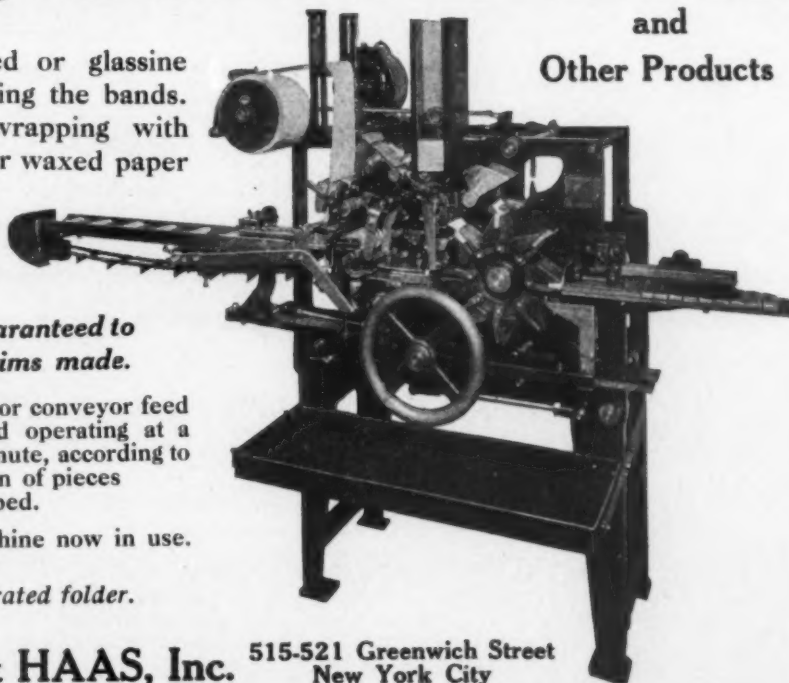
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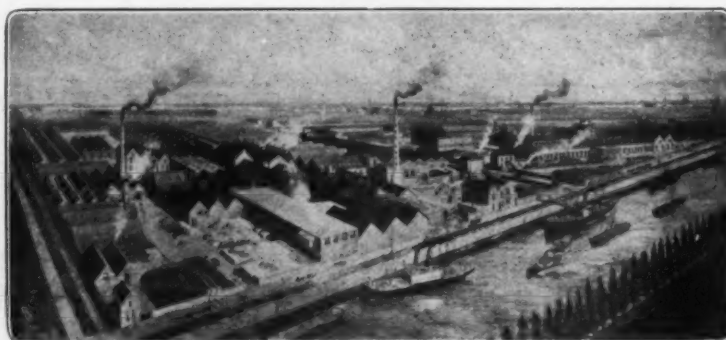
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FOR SALE—BERGER WRAPPING machine (gum), Price inventor. Good condition and now working. Best of reasons for sale. A bargain if you can use a machine at a bargain. Will Carleton, Eureka Springs, Ark.

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